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301417101

A DISSERTATION SUBMITTED TO THE TAMILNADU Dr.M.G.R. MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN NURSING

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Research Guide & :

Clinical speciality guide ----------

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SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN NURSING FROM THE TAMILNADU Dr.M.G.R. MEDICAL UNIVERSITY, CHENNAI.

OCTOBER – 2016

DECLARATION

This is to certify that the dissertation entitled "A QUASI EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF MUSIC THERAPY ON THE PHYSIOLOGICAL PARAMETERS, FEEDING AND SLEEPING PATTERN AMONG THE PREMATURE NEWBORNS IN SELECTED HOSPITAL, ERODE " is a bonafide work done by Ms.F.ABIMATHY, Shivparvathi Mandradiar Institute of Health Sciences, College of Nursing in partial fulfillment of the university rules and regulations for award of Master of Science in Nursing under the guidance and supervision of during the year of October 2016.

Signature of the Principal &

Head of the department: ----------

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DECLARATION

I hereby declare that the present dissertation titled **"A quasi experimental study to assess the effectiveness of music therapy on the physiological parameters, feeding and sleeping pattern among the premature newborns in selected hospital, Erode",** outcome of the original research work undertaken and carried out by me, under the guidance of Research & Clinical Specialty Guide Prof. Mrs M. KAVIMANI, R.N, R.M, M.S.N.,Ph.D Principal, Shivparvathi Mandradiar Institute of Health Sciences, College of Nursing.

I also declare that the material of this has not found in any way, the basis for the award of any degree/ diploma in this University or any other University.

BY

301417101

CERTIFIED THAT THIS IS THE BONAFIDE WORK OF

301417101

AT THE SHIVPARVATHI MANDRADIAR INSTITUTE OF HEALTH SCIENCES, COLLEGE OF NURSING SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF NURSING FROM THE TAMILNADU Dr.M.G.R. MEDICAL UNIVERSITY, CHENNAI.

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301417101.

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LIST OF ABBREVATIONS

SHORT FORMS	ABBREVATIONS
SPMIHS	Shivparvathi Mandradiar Institute of Health Sciences
H1	Research hypothesis
M.Sc(N)	Master of Science in Nursing
SD	Standard Deviation
BISQ	Brief Infant Sleep Questionnaire
PIBBS	Preterm Infant Breastfeeding Behavior Scale
HR	Heart rate
RR	Respiratory rate
SPO2	Oxygen saturation
P	Probability
WHO	World Health Organization
NICU	Neonatal Intensive Care Unit
X^2	Chi square

ABSTRACT

A qausi experimental study to assess the effectiveness of music therapy on the physiological parameters, feeding and sleeping pattern among the premature newborns in NICU, in selected hospital at Erode was done by 301417101 as a partial fulfillment of the requirement of the degree of Master of Science in Nursing at Shivparvathi Mandradiar Institute of Health Sciences, under the Tamilnadu Dr. M.G.R. Medical University Chennai October – 2016.

The Objectives of the study were

1. To assess the pre and post test level of physiological parameters, feeding and sleeping pattern among the experimental and control group.

2. To compare the pre and post test level of physiological parameters, feeding and sleeping pattern among the experimental and control group.

3. To assess the effectiveness of music therapy on the pre and post test level of physiological parameters, feeding and sleeping pattern among the experimental group.

4. To find the association between the post test level of physiological parameters, feeding and sleeping pattern and their selected demographic variables among the experimental group.

The research hypothesis formulated and tested were

H1: There is a significant difference in the post test level of physiological parameter, feeding and sleeping pattern between the experimental and control group.

H2: There is a significant association in the post test level of physiological parameters, feeding and sleeping pattern of the premature newborns of the experimental group and their selected demographic variables.

The conceptual framework for the present study is based on upon Ernestine Wiedenbach's Art of clinical nursing theory. The investigator organized the review of literature as studies related to premature newborns, studies related to Music therapy in premature newborns, studies related to Music therapy and physiological parameters, feeding and sleeping pattern of premature newborns.

The research design used was a quasi experimental design. The data collection tool was validated by two pediatricians and three nursing experts. Reliability was established by inter–rater (0.64) and test-retest method (0.95). The samples for the study were chosen using purposive sampling technique, 25 were in experimental and 25 in control group. Data was collected by self structured interview method by using Preterm Infant Breastfeeding Behavior Scale by Nyqvist and a modified Brief Infant Sleep Questionnaire by Sadeh, to assess the physiological parameters, feeding and sleeping pattern and Music therapy was given for 15 minutes for three consecutive days for 4 weeks.

The main study was conducted in NICU of Care 24 Medical Center and Hospital, Erode. The data collected were edited, tabulated, analyzed and interpreted by manually and validated by the Bio statistician. The paired test t value for feeding pattern was 20 and for sleeping pattern was 12.28 at $P<0.05$ revealed that there was a significant improvement in maintaining the physiological parameters, improved feeding and sleeping pattern after the music therapy. It was inferred that there was a significant difference in maintaining the physiological parameters, improved feeding and sleeping pattern and they were good improvement in the experimental group than the control group. There was no significant association between the post test level of physiological parameters, feeding and sleeping pattern of the premature newborns and their selected demographic variables.

The study concluded that the music therapy was effective in improving the physiological parameters, feeding pattern and sleeping pattern among the premature newborns, in the hospital setup. The implications, limitations, recommendations and conclusion were clearly spelt.

CHAPTER - 1

INTRODUCTION

“A HEALTHY BABY IS A SURE FUTURE”

-WHO.

Background of the study:

Children constitute the most Important and vulnerable segment of our population. They are truly the foundation of our nation. Hence the focus of every citizen should be, to promote their health and safeguard their interests. So every unborn child should be allowed to achieve his or her optimal growth and development potential so that he can effectively contribute towards nation’s productivity. The future of our nation depends on the way in which we nuture our children today.

The birth of an infant is one of the most owe inspiring and emotional event that can occur in one’s life time. After nine months of anticipation and preparation the neonate arrives amid a flurry of excitement. The new human being affects the life of the parents and also the other members of the family. If the neonate is not the robust, healthy, lovable infant as expected, parents find it very difficult to cope with these changes and feel varying degree of turmoil and anxiety. Proper care of the newborn babies forms the foundation for the qualitative outcome without any mental and physical disabilities.

Preterm infants are those born before 37 weeks of gestation. This replaces the term prematurity. The physiological parameters are less obvious when compared to adults. The immaturity places infants at risk for not only neonatal complications but also for other higher-risk factors. . In the present era of science and technology, where quality is the supreme priority, Quality of life can only be accredited by decreased morbidity and mortality rate of newborn.

Sarah Harding (2015) states that depending on how early the delivery occurs during the pregnancy, a premature baby can have different characteristics than a full-term baby. Over time, the characteristics become less noticeable. Premature babies require close monitoring and sometimes special medical assistance in NICU. Preterm babies will have a number of distinct characteristics as various stages of development. Identification of these characteristics provides valuable clues to the physiologic capabilities of the infants.

The general, outward physical appearance changes on the fetus progresses to maturity. Preterm babies are very small and appear scrawny because they have or lack only minimal subcutaneous fat deposits and have proportionately large head in relation to the body. Premature babies who arrive between weeks 30 and 32 are likely to have thin skin as a result of limited body fat, explains the March of Dimes. The skin is often wrinkly. Extremely premature infants, those who are delivered anytime between the 24^{th} and 27^{th} weeks, have yet to develop the exterior layer of the skin.

In contrast to full term babies, overall attitude of flexion and continuous activity, preterm infants are inactive and listless. The movements of a baby born between 29 and 32 weeks may appear jerky instead of smooth. Babies born before these weeks

may not move much at all. The extremities maintain an attitude of extension and remain in any position, which they are glaced. Around the 35th week, a preterm baby has got enough muscle tone to get into the fetal position, like a full-term.

The premature baby's reflex activity is only partially developed. Sucking is absent or weak due to the infant's poor muscle tone. The cries of an early baby are often weak. Other neurologic signs are absent or diminished. Physiological immature, preterm babies are unable to maintain body temperature, have limited ability to excrete solutes in the urine and have increased susceptibility to infection. A pliable thorax, immature lung tissue and an immature regulatory center lead to periodic breathing, hypoventilation and frequent periods of apnea.

Premature infants born between 34 and 37 weeks of pregnancy usually appear healthy at birth but may have more difficulties adapting than full-term babies. These preterm babies usually require more sleep and they may even sleep through a feeding, which indicates they miss much-needed calories. Most infants require special feeding methods and supplemental calories.

As a consequence of anatomic, physiologic, and biochemical inadequancies, the premature infant is prone to a variety of problems that must be anticipated and managed. Subsequent care is determined by the status of the infant. The care differs from that of the full-term infant primarily in the areas of Respiratory support, Temperature regulation, Nutrition, susceptibility to infection, Activity intolerance, and other consequences of physical immaturity.

The popularity and credibility of alternate treatment modalities such as music therapy also have increased over the past decade. Support for the use of music with infants is not limited to music therapy literature; in fact; authors in several other fields of study have written about the benefits of using music to create a nurturing environment for infants.

Music is a non-pharmacological non-chemical method used as an adjunct to traditional care and medical treatment. From a nursing perspective, music interventions have been used to promote patient's health and well-being. Music is a source of pleasure for many people and has been used throughout history to alleviate sickness and suffering. Florence Nightingale noticed the power of music in the early 1800s. she thought that music with a continued harmony, performed by the human voice, on wind instruments and on string instruments, had a beneficial effect.

Listening to music is a complex phenomenon, involving psychological, emotional, neurological, endocrinological and cardiovascular changes. The physiological reaction to music is qualitatively similar in musicians and non-musicians. An arousal effect proportional to the speed of the music is described in the literature: with slower rhythms inducing relaxation greater than preceding the exposure to music.

This evidence leads to the speculation that the music may give pleasure, and perhaps health benefit, as a result of controlled alternation between arousal and relaxation.

According to National association for Music Therapy, music therapy(MT) consists of using music to achieve therapeutic objectives; restoration, maintenance, and increase in health, both physical and mental. More specifically, music has been shown to decrease pain, stress, anxiety and demand for analgesic and anesthetic drugs.

Music seems to have measurable benefits on physiological and psychological outcomes in pediatric age, although infant and children previously exposed to music treatment protocols could be distracted from unpleasant symptoms, calmed during stressful events such as invasive procedures, and less distressed while hospitalized.

Standley (2003) used music therapy to aid in the treatment of certain Medical conditions is fast becoming a recognized and widespread practice. The utilization of music in medical treatment however is actually an ancient idea. Historically music has often been associated with the treatment of disease.

Light et.al (1954) the oldest written example is the KAHUM PAPYRUS, a document describing the use of incantations for healing. Quite monumentally this study demonstrated the beneficial effects of music on specific physiological process such as cardiac output, respiratory rate, pulse rate, blood pressure.

As a result of findings like these, clinical music therapy programs have been developed for hospital units using research based interventions. Medical Music therapy research and practice has expanded beyond adult hospital patients to pediatric and NICU.

Music has been used as an intervention purported to facilitate development in Young, at-risk children and infant stimulation and early intervention programs. Over the past decades, music has been introduced into the Neonatal Intensive Care Unit as a therapy designed to enhance treatment and facilitate growth and development of premature infants.

Need for the study:

The hospital care of premature and low-birth infants requires expensive technology and experienced care. More than ever before the Neonatalogical care besides the medical and nursing work has to been balanced between protecting the child against over extension due to the concept of "Minimal handling" and on the other hand the necessary fostering of the young patients psychic and sensomotoric development during the long stationary treatment.

WHO (Nov 2015) reports that 15 million babies are born preterm every year. Preterm birth complications are the leading cause of death among children under 5 of age, responsible for nearly 1 million deaths in 2013. Across 184 countries, the rate of preterm birth ranges from 5% to 18% of babies born. Globally about 60% of preterm

births occur in Africa and South Asia. In the lower income countries, on an average of 12% born too early compared with 9% in higher income countries.

India contributes to 17.5% of world's population and nearly one-fifth of the total live births. India ranks 36th in the list of preterm births globally, which includes 199 countries. Of the 27 million babies born in India annually (2010 figure), 3.6 million are born prematurely of which 303,600 babies don't survive due to complications.

India accounts more than 40% of the global burden of low-birth weight babies with 7.5 million babies being born with a birth weight less than 2500gms. Among these 40% are born preterm, constituting a quarter of the global burden of the preterm births. Prematurity is the cause of 35% of the Neonatal death in India.

India has witnessed a significant reduction in the number of Neonatal deaths from 1.35 million in 1990 to around 0.76 million in 2012. The Neonatal Mortality rate is not uniform across India. Kerala has attained single digit (7/1000 live births) in Neonatal Mortality rate, while Uttar Pradesh, Madhya Pradesh, Bihar and Rajastan contribute to 56% of the total Neonatal deaths in India.

According to the vital statistic of Tamilnadu, the Birth rate for the year 2013 was found to be 15.6 and the Death rate was found to be 7.5/1000 live births. In Tamilnadu, the Urban Neonatal Mortality Rate was found to be 11 and the Rural Neonatal Mortality Rate was found to be 18 per 1000 live births.

Standley (2008),quoted that Music benefits documented for the full term newborns may also apply to the premature infants, that is, lullabies promote language development, familiar music is recognized, reinforcing and comforting and infant orient to and avidly attend to music more than other auditory stimuli. This burgeoning area of research provides exciting possibilities for the practice of music therapy in NICU and for music education in early childhood.

Preterm babies are also having some sort of anxiety and stress even though we are not taking care of. Several studies have shown how music therapy enhances the efficacy of nursing interventions that is the majority of NICU staff preferred live recorded music and music appears to be an acceptable intervention in Neonatal intensive care unit.

Nordoff and Robbins(1997) states that music therapy is an important intervention that is soothing for the infants. Music therapy can also encourage parent involvement, support infant development and optimize preterm infant's neuro developmental outcomes.

Elena and Nick (2008) reported that music has an effect on the state of pediatric patients, potentially improving the physiological well being of long term hospitalized children when exposed to live music.

Zenter (1996) states that the highest mortality among infants is due to prematurity. Prematurely born infant emerges into a hectic, cold, noisy and bright environment filled with mysterious equipments and masked people who try to

help. Thus the experience in Neonatal Intensive Care Unit contains frequent aversive procedures, excess handling and disturbance of rest, noxious oral medications, noise, bright light. These conditions are sources of stress and anomalous stimulation.

The holistic movements has become a challenge to health care professionals and music is one of the few interventions that can be considered truly holistic. Research and clinical findings support the uses of music in a variety of physical and psychological conditions.

Therefore from the above findings the researcher felt that it is a need to conduct the present study to assess the effectiveness of music therapy in preterm neonates.

Whipple and Glynn (1992) stated that soothing music resulted in a significant increase in the pain threshold of 10 healthy female volunteers. The length of the hospitalization was shorter and average weight gain was greater for infants, whose Parents received training in music.

Statement of problem:

A study to assess the effectiveness of music therapy in physiological parameters, feeding and sleeping pattern among the premature newborns in NICU, at selected hospitals, Erode

Objectives of the study:

- To assess the pre and post test level of physiological parameters, feeding and sleeping pattern among the experimental and control group.
- To compare the pre and post test level of physiological parameters, feeding and sleeping pattern among the experimental and control group.
- To assess the effectiveness of music therapy on the pre and post test level of physiological parameters, feeding and sleeping pattern among the experimental group.
- To find the association between the post test level of physiological parameters, feeding and sleeping pattern and their selected demographic variables among the experimental group.

Hypothesis of the study:

H_1: There is a significant difference in the post test level of physiological parameter, feeding and sleeping pattern between the experimental and control group.

H_2: There is a significant association in the post test level of physiological parameters, feeding and sleeping pattern of the premature newborns of the experimental group and their selected demographic variables.

OPERATIONAL DEFINITION:

EFFECTIVENESS: In this study, effectiveness is the difference in physiological parameters in the preterm newborns before and after music therapy.

MUSIC THERAPY: It is the systematic application of music to induce relaxation , improve physiological parameters, induce sleep , increase feeding for the premature newborns.

PHYSIOLOGICAL PARAMETERS: In this study the physiological parameters include heart rate, respiratory rate, and oxygen saturation.

PRETERM NEONATES: Preterm neonate are the babies born of less than 37 completed weeks. In this study, preterm babies means the babies born from 30 to 36 weeks.

FEEDING PATTERN: In this study, the pattern by which the baby takes the breast feeding from the mother by sucking, latching and swallowing.

SLEEPING PATTERN: In this study, the pattern of sleep shown by the baby which includes the waking and crying spells.

ASSUMPTIONS:

- Music therapy is effective to improve the physiological parameters for the premature newborns.
- Music therapy improves the feeding and sleeping pattern for the premature newborn.
- Music therapy is more feasible to practice.

DELIMITATIONS:

The study is delimited to:

- The population of the preterm neonate who were with a gestational age from 30 to 36 weeks.
- Who was admitted in the hospital at the time of data collection.
- Who was on breast feeding.
- The study was limited to four weeks.

CONCEPTUAL FRAME WORK :

A conceptual frame work or model refers to a set of concept and assumption that integrate them in to a meaningful configuration.

POLIT and HUNGLER (2004) states that conceptual frame work is interrelated concepts or abstractions that are assembled together in some rational scheme be their relevance to a common theme. A framework may serve as a spring board for scientific advancement.

A conceptual frame work is made up of concepts, which are mental images of a phenomenon. Those concepts are linked together to express the relationship between them. It guides the researchers to know what data has to be collected and provides direction to the whole research process.

Conceptual frame work for this study was developed on the basis of Ernestine Wiedenbach's Art of clinical nursing theory. Prescriptive theory directs action toward an explicit goal. It consists of 3 factors- central purpose, prescription based on central purpose and implements it according to the realities of the situation.

A. Central purpose in the model refers to what the nurse wants to accomplish. It is the overall goal towards which a nurse strives: it transcends the immediate intent of the assignments or task by specifically directing activities towards the patient god
B. Prescription refers to the plant of care for a patient. It specifies the nature of the action that will fulfill the Nurse's central purpose and the rationale for that action.
C. Realities refers to the physical, physiological, emotional and spiritual factors that come into play in a situation involving action. The five realities identified by Wiedenbach's are agent, recipient, goal, means, frame work.

Central purpose:

The central purpose of the study is to improve the physiological parameters, feeding and sleeping pattern among the premature newborns.

Prescription:

The researcher plans the prescription that will fulfill the central purpose (improve the physiological parameters, feeding and sleeping pattern among premature newborns) by identifying the various means to achieve the goal. Thus the researcher have selected the method, music therapy , which is considered as a safe and effective to improve the physiological parameter, feeding and sleeping pattern among premature newborns without any serious side effects.

Realities :

1. Agent - Researcher or Investigator
2. Recipient - Premature new born
3. Goal - To improve the physiological parameters, feeding and sleeping pattern.
4. Means - Music
5. Frame - selected hospitals in erode.

Identification :

This includes the identification of the needs to improve the physiological parameters, feeding and sleeping pattern with the help of PIBBS and BISQ.

Ministration:

It refers to administering music to improve the physiological parameters , feeding and sleeping pattern.

Validation:

It refers to evaluation of the effectiveness of music therapy. A positive outcome represents the improvement in the physiological parameters, feeding and sleeping pattern among premature newborns after giving music therapy. The negative outcome represents the decline or non-improvement in the physiological parameters, feeding and sleeping pattern among the premature newborns.

Co-ordination:

Refers to reporting and conferring of administering music.

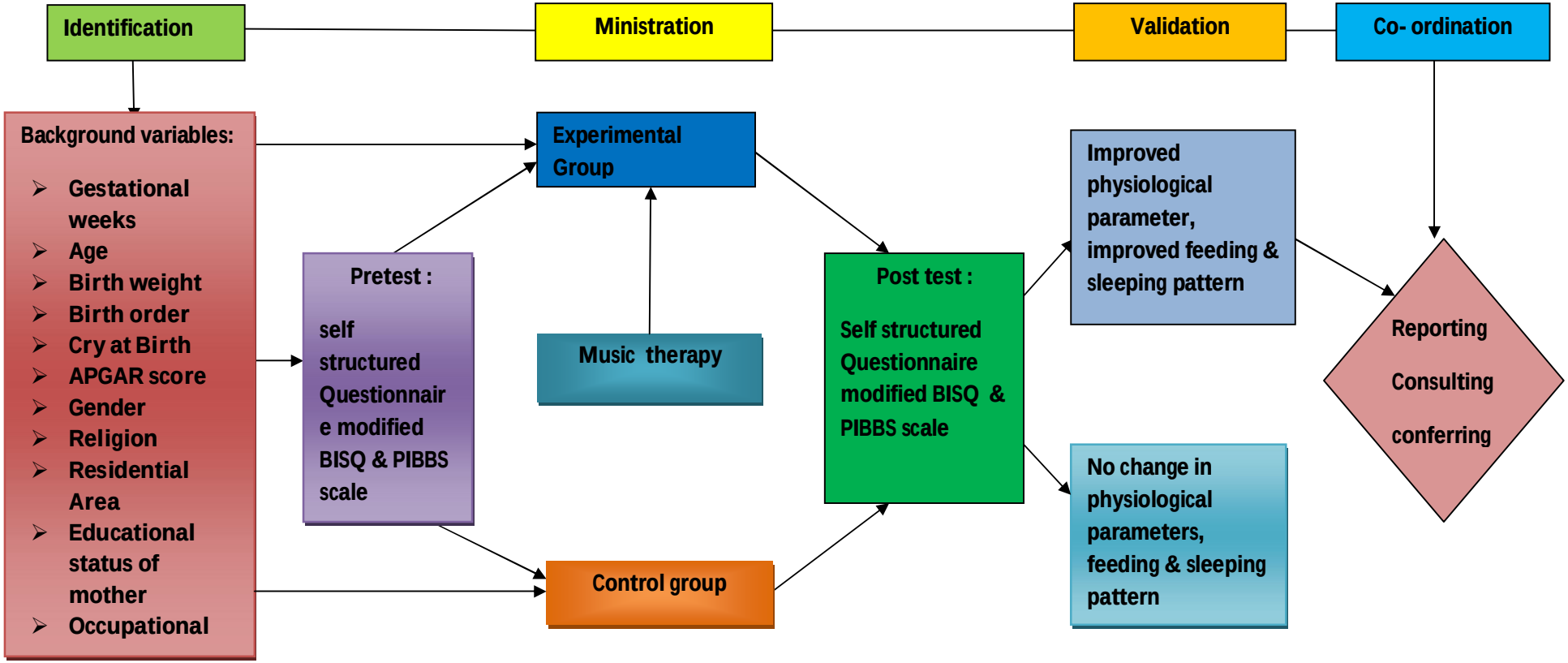

Figure -1 Conceptual framework.Ernestine Wiedenbach's art of clinical nursing theory.

CHAPTER – 2

REVIEW OF LITERATURE

“A great literature is chiefly the product of inquiring minds in revolt against the immovable certainties of nation”

- **Mecken H.C**

Review of literature is a systematic, identification, location, scrutinizing and summary of written materials that contain information on research problem.

Review of literature is a key step in research process. Literature review can either be a part of a larger report of a research project, a thesis or bibliographic essay that is published separately in a scholarly journal.

The literature review is to discover what has previously been done about the problem to be studied what remains to be done, what methods have been employed in other research and how the result of other research in the area can be combined to develop knowledge.

The review of literature in the present study is organized as follows

i. Studies related to premature newborns.
ii. Studies related to Music therapy in premature newborns.
iii. Studies related to Music therapy and physiological parameters, feeding and sleeping pattern of premature newborns.

SECTION- I. STUDIES RELATED TO PREMATURE NEWBORNS

Saumya John (2015) has conducted a quasi experimental study to assess the effectiveness of massage therapy on weight and sleep wake pattern among preterm infants in Government Head Quarters Hospital, Kancheepuram. Through convenient sampling technique, 60 samples were collected and grouped as experimental and control. The massage therapy was given to the preterm infants in the experimental group for 15 minutes for 5 days. The pretest and posttest scores of weight of preterm infants of experimental group are respectively pretest M= 1880.33, SD=234.29 and posttest M=2032.50, SD=26.39 which is statistically significant, t=12.47, p=0.00. The pretest and posttest score of sleep wake pattern of preterm infants of the experiment group were pretest M=2.10, SD=0.61 and posttest M=2.38, SD=0.38 respectively which showed statistically significant difference, t=8.93, p=0.00. Therefore it was concluded that the massage therapy is effective in promoting weight gain and sleep wake patterns among preterm babies.

Jemima (2015) has conducted a quasi experimental study to assess the effectiveness of prone position on oxygen saturation among preterm babies, who are admitted in the Government Vellore Hospital, Adukampari, Vellore. Using non probability convenient sampling method 60 preterm babies were selected, and they were allotted for experimental and control group by lottery method. The babies in the study group were made to lie on their stomach with their face turning towards the side and the level of SPO2 was monitored for every 30 minute for about 2 hours. The pretest and posttest level of oxygen was assessed. The study result reveals that post test score of oxygen level in experimental group is M=92.27, SD=1.74 and in control group is M=8.37, SD=1.19, which is statistically significant p=0.05, t=2.08. Therefore it was concluded that the prone positioning

improves the oxygen saturation of the preterm babies with inadequate Oxygen saturation.

Marie Ellis (2014) on behalf of WHO published in the journal PLoS medicine regarding the prevalence of Asthma in preterm babies. The researchers studied data on more than 1.5 million children around the world. The researchers used information in patients born from 1990s , and about 30 studies from six different continents, while majority of the studies came from Europe. The study revealed that the preterm babies are 50% more likely to develop Asthma. The research team also found out that the babies born before 37 weeks were 50% more likely to develop Asthma and those born 2 months early were 3 times as likely to develop asthma when compared to full term babies.

August and Edmonds (2014) conducted a descriptive cohort study to investigate about the specific rates of neonatal skin breakdown from pressure including location, stages and etiology associated with tissue damage, in North Queensland's tertiary perinatal centre over a 2 year period and about 247 neonatal patients were reviewed. Prevalence audits for pressure injuries to the skin were conducted and incorporated categorization of with degree of tissue breakdown between stage 1-4. The study result revealed that 31.2% were identified as having a skin injury. In total 107 injuries were identified with the mean number of 1.4 injuries. The mean gestational age was 28 weeks (range 22 – 41 weeks, S.D 4.1 weeks) and the mean birth weight was 1155g (range 445-2678g, S.D 620g). Factors identified as contributing to pressure injuries included indwelling vascular catheters (22.4%), Non-invasive continous positive airway pressure delivery devices (14.1%), oxygen saturation and temperature probes (17.8%). 31.8% of injuries could not be associated with specific risk factors. So it was concluded that the neonates are undeniably at risk for pressure injuries however, it is still unclear which proportion of the injuries are entirely preventable.

Thilaga and Shantha (2014) has conducted a quasi experimental study to determine the effect of tactile stimulation on selected parameters among preterm babies admitted in NICU at Kasturibai Hospital, Gandhigram. The study sample consists of 60 babies. The tactile stimulation was given with the sesame oil massage all over the body except the cranium and the eyes. The result was found that the preterm babies, who received tactile stimulation achieved weight gain($t=12.5$), stable heart rate($t=21.69$), increased sleeping time($t=11.63$), and decreased crying spells($t=10.25$) than control group($p<0.05$). The study concluded that the tactile stimulation, when administered to preterm babies, has a beneficial effect on growth and behavioral development.

Helth and Jarden (2013) conducted a hermeneutic phenomenological qualitative study to explore how the fathers of the premature infants experience and potentially benefit from using skin-to-skin method during their infants admission in NICU. The study was conducted in NICU, Copenhagen University Hospital, Denmark. In-depth semi-structured interviews was done to the fathers of the premature infants. From the result the researcher finally concluded three themes- "Competent parenthood, Paternal roles and the division of roles between the parents, and Balance between working life and the time spent with the infant". It was revealed that the skin-to-skin enhances the father's ability to play a caring role in their infant's life and it also helps them to understand their own role as a father. Therefore the Health Professionals should focus on promoting the abilities of both parents and on ascribing the fathers an equal and imported role in their infant's care.

Jasmine Rani (2013) has conducted a study to assess the effectiveness of Nesting upon Bio-physiological parameters, Neuro-behavioral activity and sucking responses among preterm babies in St.Antony's Hospital, Chennai. Total of 60 samples were collected by simple random sampling technique and they are divided

into control and experimental group respectively. Data was collected through the interview method by using Neonatal variable proforma and Obstetrical variable proforma. The Bio-physiological parameters, Sucking and Neuro-behavioural activity was assessed before Nesting for the experimental and control group. Nesting was given for a period of 6 hrs consecutively for 2 days. The observations were made at 1 hr, 3rd hr and 6th hr. The study revealed that there is improvement in the body temperature of the preterm babies in experimental group, M=98.28, SD=0.26, when compared to control group M=97.15, SD=0.15. It was also inferred that the Sucking response of the preterm newborn babies after Nesting was high, M=12.35, SD=2.15 in comparison with the pretest M= 9.88, SD=2.36 and the difference was significant at $p<0.05$ level. It was concluded that Nesting can also reduce the alterations in thermoregulations in the early Neonatal period. Thus Nesting enhances the sleep, sucking response and there is improvement in weight gain of the preterm babies.

Marlow (2007) conducted a comparative study about the survival rates of the premature infants in the University college London's Institute for Women's Health. He mentions that the survival rate after being born prematurely is rising. The overall survival rate among the babies born is 40% in the year 1995 and now which is raised up to 53% in the year 2006. The number of premature newborn admitted to NICU also rose from 666 in 1995 to 1115 in 2006 which reflect the advances in the neonatal medicine. Although the proportion of experiencing severe disability has not been changed which is found to be 18% in 1995 and 19% in 2006. The study concluded that the increased chance of the survival rate is due to the administration of steroids to the mothers who are thought likely to imminently give birth to an extremely premature baby, which boots the child's lungs before birth.

Bottos (1984) conducted an experimental study on the effects of a containing position in a hammock versus the supine position on the cutaneous oxygen level in preterm babies, in the NICU of the University of Padova, Italy. The study included 40 babies whose gestational age is less than 38 weeks. Among the premature babies, 11 were with hyaline membrane disease, 8 with perinatal asphyxia and 6 were small for gestational age. A little hammock was placed inside the incubator and then the baby is placed over it. The hammock helps the baby to maintain the position of correctly contained, which is similar to inutero. The study result showed that the hammock inhibits or shortens the dystonic phase and it also facilitates bringing in the hands of the premature babies to the middle pattern which is one of the basic milestone neuro motor development. The usage of hammock helps in maintaining the baby's head in midline which stimulates the visual exploration of the environment and also the risk of milk aspiration is greatly reduced.

SECTION - II. STUDIES RELATED TO MUSIC THERAPY IN PRETERM NEWBORNS:

Schlez A (2011) Israel, has conducted a study regarding combining live harp music therapy and kangaroo Mother care on short-term physiological and behavioral parameters of preterm infants and their mothers in NICU setting. 52 infants born between 32 and 37 weeks of gestation were included. The infants were given kangaroo care and live music therapy or kangaroo care alone. Neonatal heart rate, oxygen saturation, respiratory rate along with neonatal behavior state and the maternal anxiety state were also recorded. The result showed that, compared with kangaroo care alone, kangaroo care and live harp music therapy had a significantly beneficial effect on maternal anxiety score (46.8 vs 27.7 +/- 7.1respectively, $p<0.01$). Infant's physiological responses and behavior did not differ significantly. It was concluded that kangaroo care combined with live harp music therapy is more beneficial in reducing maternal anxiety.

Farhat (2010) has conducted a study to investigate the effect of lullaby music on the physiologic response and weight gain of premature infants in NICU of Imamreza Hospital, Iran. About 44 very low birth weight infants <34 weeks of gestational weeks admitted to NICU were selected and randomly assigned to two groups. Lullaby music was played through ear phones, continued for 8 days at 20 minutes per day. Infants were monitored for 40 minutes; 10 minutes baseline, 20 minutes into the intervention and 10 minutes post intervention. Heart rate, Respiratory rate, Oxygen saturation and body weight were measured. The result showed the there is a significant difference between the two groups, respiratory rate ($p=0.01$) and oxygen saturation ($p=0.001$). There was no significant difference in the heart rate ($p=0.24$) and weight gain ($p=0.093$). It was concluded that the preterm infants respond to lullaby music as evidenced by the changes in their respiratory rate and oxygen saturation.

Cassidy JCU (2009) has conducted a study regarding the effect of decibel level of music stimuli and gender on head circumference and physiological responses of premature newborns in the NICU, between the gestational age of 28 and 33 weeks. 63 premature infants in the NICU were selected, half of the experimental infants listened to 20 minutes of lullaby music on 2 days followed by 20 minutes of classical music on 2 days. The other half listened to the same music in the reverse order. One quarter of males and one quarter of females listened to music presented at an average of 65db, one quarter at an average of 70db, and one quarter at an average of 75db and one quarter served as a control group. The head circumferences data were collected on the first day of music, on the last day of music and first week after music presentation. Physiological data(heart rate, respiratory rate, oxygen saturation) were recorded at 2 minute interval starting 4 minute prior to and ending 4 minute after music presentation. There was a significant difference (P<.0001) in average daily head growth across time, when compared to control group infants. Results indicate a significant (P=.002) decrease in the heart rate over course of data collection, no difference due to gender were noted.

Lubetzky R and Dollbery S (2009) has conducted a prospective crossover study to determine the effect of music by Mozart on Energy Expenditure in Growing preterm infants. 20 healthy-appropriate-weight for-gestational-age, gavage fed preterm infants were selected and they were randomly assigned to be exposed to a 30 minute period of Mozart music. Metabolic measurements were performed by indirect calorimetry. The result revealed that the REE (Resting Energy Expenditure) was similar during first 10 minute period of both groups. During the next 10 minute period, infants who were exposed to music had a significantly lower REE than when not exposed to music (p=0.28) and during the third 10 minute period p=0.3. Thus on average, the effect of music on REE is a reduction of approximately 10% to 13% from baseline, an effect obtained within 10 to 30 minutes. It was concluded that exposure to Mozart music

significantly lowers REE in healthy preterm infants. This effect of music on REE might explain, in part, the improved weight gain that result from the “Mozart effect”.

Chou and Wang (2003) in Tri-service General Hospital, China has conducted a study to assess the effect of Music therapy on oxygen saturation in premature infants receiving endotracheal suctioning. A sample of 30 infants were selected from three NICU. The oxygen saturation of all the babies was measured while they were receiving endotracheal suctioning during a four- hour control period with regular care. Then after the music “transitions” were played. One minute before suctioning, the level of oxygen saturation was measured which provides the baseline data. During the period of 30 minute after the suctioning the oxygen saturation levels were recorded every minute to analyze the clinical effect of music therapy. The result showed that the premature infants receiving the music therapy with endotracheal suctioning had a significantly higher oxygen saturation than that when not receiving music therapy ($p<0.1$)and the level of oxygen saturation returned to the baseline level faster than when they did not receive music therapy ($p<0.01$). It was concluded that giving appropriate music therapy as developmental care to premature infants enhance the quality of infant’s life.

Bol L.K (2000) has conducted a study to determine the effect of Non-Nutritive sucking (NNS) and music therapy(MT) on Heart rate, Transcutaneous oxygen levels and pain behavior of neonates in NICU in a government funded hospital in Hong kong. The study sample include 27 neonates. The result showed that repeated-measures multivariate analysis of variance revealed statistically significant differences in outcomes across all interventions [Wilk’s lambda =0. 142; F{3,27}=31.82; eta 2=0.47]. One way analysis of variance revealed that the 3 comfort intervention significantly reduced Neonate’s Heart rate [Wilk’s lambda=0.647; F{2,27}=18.93; eta2=0.35], improved their Transcutaneous oxygen levels [Wilk’s lambda=0.481; F{2,27}=37.42; eta2=0.51] and

reduced pain levels[Wilk's lambda=0.312; F{2,27}=76.42; eta=0.68]. Posthoc Scheffe test revealed that NNS+MT has the strongest effect on neonates' heart rate. It was concluded that using NNS+MT when doing heel sticks can improve the Transcutaneous oxygen levels of neonates and reduce their pain and using MT alone can improve the Heart rate of the Neonates.

Standley JM (1998) has conducted a qualitative study among the preterm infants in level III Newborn Intermediate Care Unit in Florida State Hospital, Tallahassee, USA regarding the effect of music and multimodal stimulation on responses of premature infants. 40 infants were studied and they are grouped into control and experimental groups based on gender, birth weight, gestational age at birth and severity of medical conditions. The experimental group received reciprocal, multimodal stimulation paired with line singing of Brahm's lullaby. Stimulation was provided for 15-30 minutes, one or two times per week. Result showed that music and multimodal stimulation significantly benefited females' days to discharge and increased weight gain per day for both males and females. Both male and female infant's tolerance for stimulation showed marked and steady increase across the stimulation interval with female's tolerance increasing more rapid than male infants.

SECTION-III:STUDIES RELATED TO MUSIC THERAPY AND PHYSIOLOGICAL PARAMETERS, FEEDING AND SLEEPING PATTERN OF PREMATURE NEWBORNS:

Silva and Jessica (2013) has conducted a study to evaluate the physiologic effects of music therapy in preterm babies in NICU of University Hospital, of Doutor Helio Mandetta Medical school of Brazil. A non-controlled clinical trial including 12 newborn infants with a gestational age of < 36 weeks of spontaneously breathing were selected for the study. These preterm infants were submitted to 15 minute sessions of classical music therapy twice a day (morning and afternoon) for 3 consecutive days. The Heart rate, Respiratory rate, Oxygen saturation, Systolic and Diastolic arterial pressures and body temperature were analyzed before and immediately after the music therapy session. The result was found to be present with a decrease in the Heart rate after the 2^{nd} session of music therapy ($p=0.002$) and an increase at the end of 3^{rd} session ($p=0.005$). Respiratory rate decreased during the 4^{th} and 5^{th} sessions ($p=0.01$ and $p=0.03$). Regarding the Oxygen saturation there is an increase after the 5^{th} session ($p=0.008$). It was concluded that the music therapy may modify short-term physiological responses of preterm infants.

Loewy (2013) has conducted a study to determine the effect of music therapy on vital signs, feeding and sleep in premature infants, in Hudson valley Health care system, Castle point, New York. A randomized clinical multisite trial of 272 premature infants aged > 32 weeks with respiratory distress syndrome, clinical sepsis, and or SGA (small for gestational age) served as their own controls in 11 NICUs. Infants received 3 interventions per week within a 2 week period, when data of physiologic and developmental domains were collected before, during, and after the interventions or no intervention. The result showed that three live music interventions showed changes in heart rate interactive with time. Lower heart rate occurred during the lullaby ($p<0.001$)

and rhythm intervention (p=0.04). Sucking behavior showed differences with rhythm sound interventions (p=0.03). Entrained breath sounds rendered lower heart rates after the intervention (p=0.04) and differences in sleep patterns (p<0.001), caloric intake (p=0.01) and sucking behavior (p=0.02) were parent preferred lullabies. Music decreased parental stress perception (p<0.001). It was concluded that the intentional therapeutic use of live sound and parent preferred lullabies can influence cardiac and respiratory function. Entrained with a premature infant's observed vital signs, sound and lullaby may improve feeding behavior and sucking patterns and it may also increase prolonged periods of quiet-alert states. Parent-preferred lullabies, when sang live, can enhance bonding, thus decreasing the stress, parents associate with premature infant care.

Deepthimol (2011) has conducted a quasi experimental study to assess the effectiveness of classical music therapy on the physiological and behavioral parameters among the preterm neonates with respiratory distress, in NICU, Bangalore. About 50 preterm babies of gestational age between 30 to 36 weeks were selected for the study. The data were collected from each sample for 4 consecutive days and the sample subject act as their control group on alternate days. The observations regarding the physiological and behavioral parameters were collected before and after classical music therapy at specific time intervals. Respiratory distress was assessed by Downey's score at specific time intervals. The result showed that there is a significant increase in the Oxygen saturation from the mean oxygen saturation of 93+/- 1.2 before music to 96+/-0.4 after music therapy. Also there is a significant decreased heart rate from 140.2+/-4.6 before music to 132.2+/-2.4 after music therapy. The preterm babies were found to have decreased crying spells. It was concluded that the classical music therapy was effective among the preterm neonates when given at the appropriate time.

Johnston and Filion (2007) has conducted a study regarding the effectiveness of recorded maternal voice for preterm neonates undergoing heel lance. The study included 20 infants who were in between 32-36 weeks of gestation. The infants were exposed to the recorded mother's voice for 10 minutes, 3 times a day after feedings. Then the infant was a heel lance, the infant's Heart rate and oxygen saturation level prior to heel lance, during and after the heel lance were recorded. It was found that the mean oxygen saturation level was increased during the third day of the intervention when comparing to the mean oxygen level of the first day of the intervention. (96.2 vs 94.1) therefore the result suggest that the female singing results in increased levels of oxygen.

Arnon (2006) has conducted a study to assess the effectiveness of live music therapy on the physiological parameters and behavioral pattern(sleeping state) of the preterm newborns in NICU. 31 stable infants were randomly selected and they were given live music, recorded music and no music therapy over 3 consecutive days for about 30 minutes. The infant's Heart rate, Respiratory rate, Oxygen saturation and behavioral assessment were done. The study revealed that there is a significant reduced heart rate(150 +/-3.3 beats before therapy vs 127 +/- 6.5 beats after therapy) and improved behavioral score (3.1 +/- 0.8 before therapy vs 1.3 +/- 0.6 after therapy, $p< 0.001$). The study concluded that live music therapy is associated with a reduced heart rate and a deeper sleep in the stable preterm infants.

Paul and Gupta (1999) has conducted a study to determine the immediate cardio-respiratory effects of classical music therapy in preterm neonates in NICU, AIIMS, Delhi. 41 preterm neonates of gestational weeks 32.7+/- 1.7 weeks and birth weight of 1620 +/- 230gm were selected respectively and given classical music therapy for a period of 60 minutes for 3 days. Day 2 was the control period and no music was played. The baby's Heart rate, Oxygen saturation were recorded 15 minutes before music(BM), 30

minutes of music(MM), and 15 minutes post-music(PM).The result showed that on day 1 and 3, Heart rate value were significantly lowered during the music (MM) and post-music(PM) phases when compared to before music (BM). BM=144+/-5, MM=137.0+/-4.6 and PM=135.0+/-4.2; BM vs MM $p<0.05$, BM vs PM $p<0.05$. On day 3, Heart rate measured was BM=144.8+/-5.3, MM=137.6+/-3.9, PM=134.1+/-3.6, BM vs MM $p<0.05$, BM vs PM $p<0.05$. On contrast on day 2 of study with no music there was no differences in the mean heart rate during the 3 phases of observation. BM=144.5+/-4.7, MM=144.7+/-5.2, PM=144.6+/-5.3. BM vs MM and BM vs PM is not significant. The mean Oxygen saturation value on day 1 were significantly higher during music and post-music phases than before music session. BM= 95.43+/-0.31, MM=96.4+/-0.3, PM=96.0+/-0.4. BM vs MM $p<0.05$, BM vs PM $p<0.05$. On day 3 also, BM=94.6+/-0.2, MM=96.0+/-0.15, PM=95.7+/-0.2. BM vs MM $p<0.05$, BM vs PM $p<0.05$. In contrast, there is no differences in Oxygen saturation values in 3 phases on day 2, BM=94.7+/-0.3, MM=94.3+/-0.4, PM=94.5+/-0.3. BM vs MM and BM vs PM is not significant. So it was concluded that listening to classical music therapy, there is significant improvement in Oxygen saturation (by 1-1.4%) and lowering Heart rate (by 5-5.6%) and therefore it was found that Music therapy was useful to achieve stress relaxation for babies in NICU.

CHAPTER – 3

RESEARCH METHODOLOGY

Research methodology is a way to solve the problem systematically. It considers the logic behind the methods used in the context of the research study. Methodology is a significant part of research under which the researcher is able to plan the blue print of the research taken. Thus research results are capable of being evaluated either by the researcher themselves or by the others.

This chapter deals with the methods adopted for the study and includes the description of research design, settings of the study, population, variables, sample size, sampling technique, criteria for sample selection, the inclusion and exclusion criteria, the development of the tool, collection of data, pilot study and plan for data analysis.

RESEARCH APPROACH:

The selection of research approach is the basic procedure for the conduction of research enquiry. A research approach tells us such as what data to be collected and how it should be analyzed. It also suggests possible conclusions to be drawn from the data. According to Treece and Treece (1986), the approach to research is the umbrella which covers the basic procedure for conducting the research.

Research approach is a systematic, controlled empirical and critical investigation of natural phenomena guided by theory and hypothesis about presumed relation among the phenomena. The research approach used for this study was quasi experimental approach.

RESEARCH DESIGN:

According to Nancy Burns, the research design is a blue print for conducting a study that maximizes control over factors that could interfere with the validity of the findings.

The research design selected for the present study was Quasi Experimental Non-Randomized control group which is relatively straight forward research design in which there is an experimental group and a control group in which samples are selected by purposive sampling technique. All the subjects were given the pretest, and the experimental group received the treatment and the control group received no treatment, and post test were conducted for both the group.

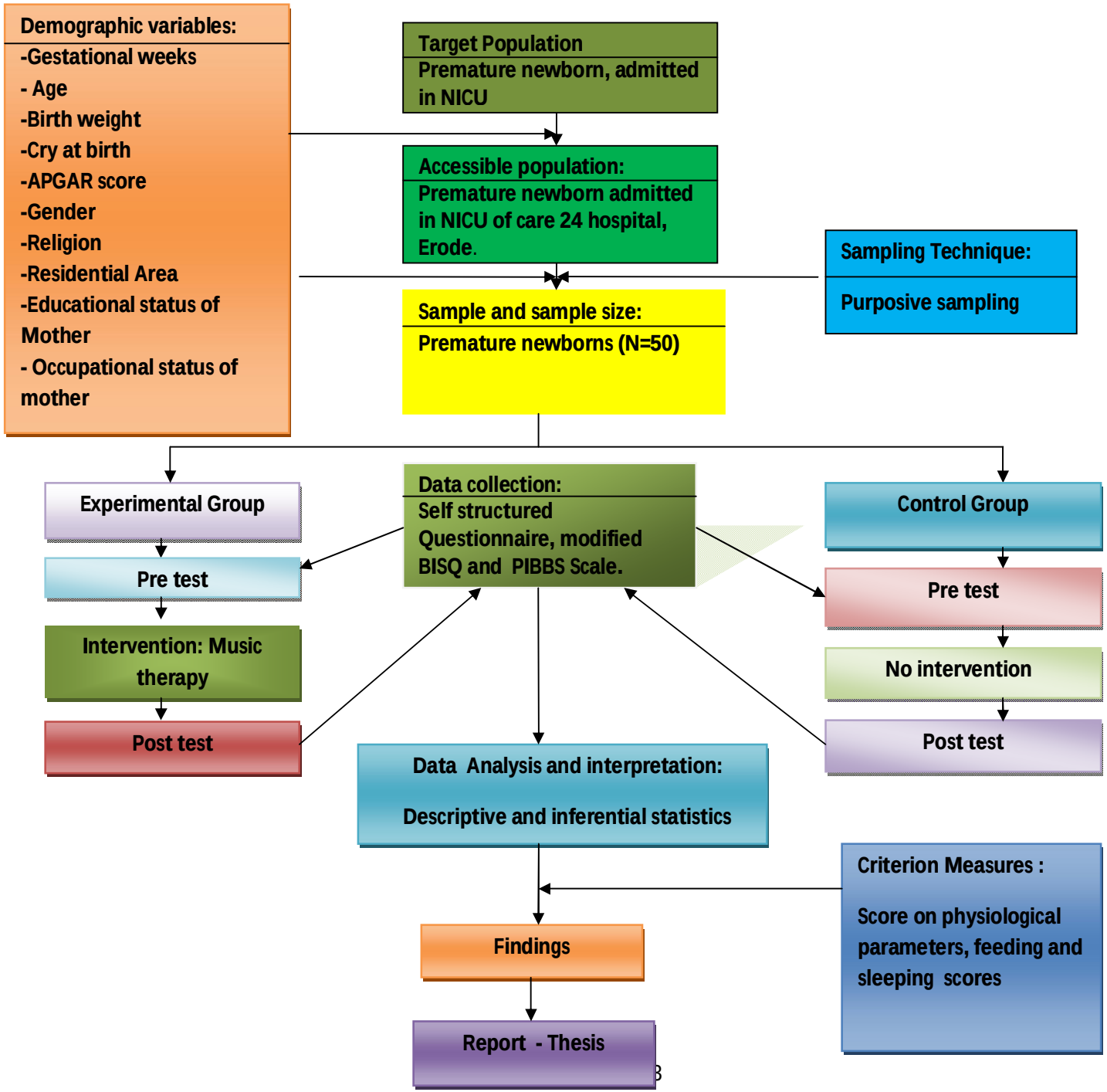

Figure -2 Schematic representation of Research Design

RESEARCH DESIGN NOTATION

GROUP	PRE TEST	INTERVENTION	POST TEST
Experimental group	O_1	X	O_2
Control group	O_1	_	O_2

The symbols used:

O_1: Pre test to assess the level of physiological parameters, feeding and sleeping pattern among preterm newborns in experimental and control groups.

X : Music therapy

O_2: Post test to assess the effect of Music therapy among preterm in experimental and control group.

VARIABLES

According to Suresh K Sharma (2011) variables are the qualities, properties or characteristics of a person, things or situations that change or vary. Variables are concepts at different level of abstraction that are concisely defined to promote their measurement within study.

INDEPENDENT VARIABLE

Variables that are purposely manipulated or changed by the Researcher. It is also called as manipulated variable. In the present study Music therapy is an independent variable.

DEPENDENT VARIABLE

Variable that changes as the independent variable is manipulated by the researcher. It is also termed as the criterion. In the present study the physiological parameters, feeding and sleeping pattern among the preterm newborns were the dependent variable.

DEMOGRAPHIC VARIABLES

Existing characteristics of the research subjects such as gestational weeks of the newborn, age of preterm newborn, birth weight, birth order, cry of the child at birth, APGAR score, gender, religion, residential area, educational status of the mother, occupational status of the mother.

SETTING OF THE STUDY

According to **Polit and Beck (2004)** setting is the more specific places where data collection occurs. The selection of setting was done on the basis of feasibility of conducting the study, availability of the subject and cooperation of authority. The study was conducted in the NICU of CARE-24 Hospital at Erode.

POPULATION

Polit and Beck (2012) stated that the term population refers to the aggregate or totality of all subjects or members that confirm to a set of specifications. Population may be of two types - target population and accessible population.

Target population refers to the population that the researcher wishes to make a generalization. In this study the target population were the preterm newborns admitted in the NICU.

Accessible population refers to the aggregate cases which confirm to the designed criteria and which is accessible to the researcher as the pool of subject or object. In this research the accessible populations were the preterm newborns admitted in the NICU of the CARE-24 Hospital at Erode.

SAMPLE AND SAMPLE SIZE

Polit and Beck (2004) stated that a sample consists of the subset of the population selected to participate in the research study. Sample size is the number of people participating in the study. The sample size is determined based on the type of the study, variable being studied, the statistical significance required, and availability of samples and feasibility of conducting the study. The sample include male and female preterm babies who fulfilled the sample selection criteria. The sample size for this study consists of 50 samples.

SAMPLING TECHNIQUE

In present study purposive sampling technique was used. It is one of the non-probability or non-random method in which the deliberate selection of sample units that confirm to some predetermined criteria. Purposive sampling is also termed as judgmental or theoretical sampling.

SAMPLE SELECTION CRITERIA

The study samples were selected using the following criteria

INCLUSION CRITERIA

- Preterm newborns of gestational weeks between 30-36.
- Preterms who were on breastfeeding.
- Mothers who were willing to participate in the study.

EXCLUSION CRITERIA

- Preterms who were critically ill.
- Mothers who were not willing to participate in the study.

DEVELOPMENT OF THE TOOL

The tool is the written device that a researcher assess to collect the data. After careful and detailed review of literature the researcher prepared and developed a structured interview schedule and modified BISQ, PIBBS scale as a tool for the present study. Reliability of the tool was tested prior to pilot study. The tool comprised of two sections namely section-1 demographic variable and section-2 is a self structured questionnaire, modified BISQ and PIBBS scale.

DESCRIPTION OF TOOL

Description of the tool refers to the explanation of the content of the tool. The researcher lists the number of items and the scoring for each item in the tool. The tool used for the present study has two sections.

Section-1 Demographic variable

This section consists of self structured questionnaire about the demographic details of the newborn and the mother. It consists of gestational weeks of the

newborn, age of preterm newborn, birth weight, birth order, cry of the child at birth, APGAR score, gender, religion, residential area, educational status of the mother, occupational status of the mother.

Section-2 Self structured questionnaire with Modified BISQ and PIBBS Scale

It includes three sub parts. A) self structured questionnaire to evaluate the physiological parameters (Heart rate, Respiratory rate, SPO2) of the premature newborns. It includes 3 questions and scored by the range of 1-3 and interpreted as normal, irritable, restless.

B) The Preterm Infant Breastfeeding Behavior Scale (PIBBS) is an instrument specially designed for the preterm infants. It consists of 6 items in which the scoring is made by the use of rating scale with different range. The range of score is 0-20 and interpreted as poor , fair and good intake

C) The Brief Infant Sleep Questionnaire (BISQ) is an instrument designed for the pediatric population. It consists of 7 questions regarding the sleep pattern of the infants. Scoring is made by the use of rating scale with the range of score 0 – 4 and interpreted as poor , moderate and good sleep.

The total score of the developed tool is 50 and it is interpreted as follows.

Score interpretation

Total score - 50

Least score - 0

PERCENTAGE	SCORE	INTERPRETATION
0 – 33 %	0 – 16	Poor improvement
34 – 67 %	17 – 33	Fair improvement
68 – 100 %	34 – 50	Good improvement

VALIDITY OF THE TOOL

Validity of the tool refers to the degree to which the test or other measuring device is truly measuring what it is indented to measure. The important aspect in assessing an instrument is content validity, criteria validity and construction validity.

The Content validity of the data collection tool and intervention tool was ascertained by opinion of experts in the field. It is validated by three child health nursing specialities, two peadiatrician . Suggestions were considered and modified according to the opinion of the experts.

RELIABILITY OF THE TOOL

Polit and Hungler define reliability as the degree of consistency or accuracy with which an instrument measures the attribute it is designed to measure. Inter rater reliability was used to establish the reliability among 10 samples. Reliability was computed using Test – retest method for Modified BISQ scale, the reliability was found to be T = 0.95. Reliability was computed using Karl Pearson's Correlation Coefficient method. The reliability was found to be r = 0.64 for modified PIBBS scale. The tool was found to be highly reliable to proceed with the main study.

PILOT STUDY

The pilot study is the miniature trial run of the methodology planned for the majority research study, which facilitates to improve the methodology of the study and may identify the problems that may be faced by the researcher in actual larger research project. It was conducted to find out feasibility, practicability, validity, and reliability of the study.

The pilot study was conducted in CARE – 24 Hospital with prior permission from the authorities obtained. Informed consent was obtained from 10 samples, who fulfilled the inclusive criteria using purposive sampling method. A

brief explanation was given about the intervention and purpose of the study to the participants. The intervention was given 7 days for the samples and data was collected by interviewing and using the scale. Privacy and confidentiality was ensured. The study was found to be feasible in terms of availability of samples, cooperation of the institution, times, distance, money and material.

DATA COLLECTION PROCEDURE

Phase I Screening phase

The study was conducted in CARE – 24 Hospital. data were collected in the month of June-July 2016, and official permission was obtained from the authorities before to conduct the study.

Screening of the preterm newborns was done by using the BISQ and PIBBS scale. Total of 50 babies who fulfilled the selection criteria were selected by purposive sampling in which 25 were in experimental group and another 25 were in control group. To assess each preterm newborn it took 5 minutes.

Phase II Data collection phase and Implementation phase

After identification of the preterm newborns, the purpose and the procedure of the data collection and music therapy was explained to the mothers

and care givers and the written informed consent was obtained from them and confidentiality was ensured. The investigator interviewed the mothers with proper privacy to collect information on demographic variables. 25 babies in experimental group were given music therapy for 15 minutes, consecutively for 3 days. Then post evaluation was done by the same BISQ and PIBBS scale. After the music therapy the physiological parameters and the feeding pattern was improved and also there was decreased crying periods during the sleeping. This phase lasted for 15 – 20 minutes.

Phase III Termination phase

The tool was verified for completion. The mothers were assured about the confidentiality of the data. The baby was made comfortable. This phase lasted for a period of 5 minutes per baby and the mother.

PLAN FOR DATA ANALYSIS

Data analysis is the systematic organization and synthesis of research data and testing of the research hypothesis using the data.

The data collected from the subjects were complied and analyzed using descriptive and inferential statistics.

- Data on demographic variables of the experimental and control group was analyzed by using Frequency and Percentage.
- Data of the physiological parameters , feeding and sleeping pattern among the preterm newborn of the experimental and control group were analyzed by Mean and Standard deviation
- Data of the post test level of the physiological parameters, feeding and sleeping pattern among the experimental group were analyzed by paired 't' test.
- Data on the association between the post test level of the physiological parameters, feeding and sleeping pattern and their selected demographic variables among the experimental group were analyzed by chi square.

ETHICAL CONSIDERATION

Ethical considerations were taken into account for the purpose of the study to assess the physiological parameters, feeding and sleeping pattern among preterm newborn in the selected hospital. The baby's mother and the family members were informed about the purpose of the study and confidentiality was promised and ensured. The mother was given full freedom to decide on whether to participate in the study or not. No physical or physiological harm was produced.

CHAPTER – 4

DATA ANALYSIS AND INTERPRETATION

MUSIC SPEAKS WHAT CANNOT BE EXPRESSED, SOOTHESS THE MIND AND GIVES REST, HEALS THE HEART AND MAKES IT WHOLE FLOWS FROM HEAVEN TO SOUL….

Data analysis is the method of organizing data in such a way that the research questions can be answered. Interpretations is the process of making sense of the result and of examining the implications of the findings within a broader context. This chapter deals with the analysis and interpretation of the data collected before and after the music therapy.

The analysis was done manually by the investigator and validated by the Bio-statistician. The probability value of $p<0.05$ was considered to be significant.

THE OBJECTIVES OF THE STUDY:

- To assess the pre and post test level of physiological parameters, feeding and sleeping pattern among the experimental and control group.

- To compare the pre and post test level of physiological parameters, feeding and sleeping pattern among the experimental and control group.

- To assess the effectiveness of music therapy on the pre and post test level of physiological parameters, feeding and sleeping pattern among the experimental group.

- To find the association between the post test level of physiological parameters, feeding and sleeping pattern and their selected demographic variables among the experimental group.

THE DATA ANALYSED WERE PRESENTED AS FOLLOWS

Section 1: Data on selected Demographic variables of the Premature Newborns in the experimental and control group.

Section 2: Data on comparison of Physiological parameter, Feeding and Sleeping pattern among Premature Newborn among experimental and control group.

Section 3: Data on the Effectiveness of Music therapy on the Physiological parameters, Feeding and Sleeping pattern among the Premature Newborns.

Section 4: Data on the association of Post test level of Physiological parameters, Feeding and Sleeping pattern and their selected demographic variables among experimental group.

SECTION 1: DATA ON SELECTED DEMOGRAPHIC VARIABLES OF THE PREMATURE NEWBORNS IN THE EXPERIMENTAL AND CONTROL GROUP

TABLE 1: FREQUENCY AND PERCENTAGE DISTRIBUTION OF SELECTED DEMOGRAPHIC VARIABLES OF THE EXPERIMENTAL AND CONTROL GROUP

S. no	Demographic variables	Experimental group		Control group	
		Freq	%	Freq	%
1.	Gestational weeks				
	a. Below 30 weeks	0	0	0	0
	b. 31 - 33 weeks	4	16%	3	12%
	c. 34 - 36 weeks	21	84%	22	88%
2.	Age of Premature Newborn				
	a. 1 - 7 days	9	36%	8	32%
	b. 8 – 14 days	5	20%	4	16%
	c. 15 – 21 days	8	32%	9	36%
	d. 22 – 28 days	3	12%	4	16%
3.	Birth weight				
	a. 2 – 1.751 kg	20	80%	20	80%
	b. 1.750 – 1.501 kg	5	20%	5	20%
	c. 1.500 – 1.251 kg	0	0	0	0
	d. > 1.250 kg	0	0	0	0
4.	Birth order				
	a. One	20	80%	17	68%
	b. Two	5	20%	8	32%
	c. Three	0	0	0	0

5.	Cry of the child at birth a. Did not cry b. Weak cry c. Cried well	 0 7 18	 0 28% 72%	 0 7 18	 0 28% 72%
6.	APGAR score a. 0 – 3 b. 4 – 6 c. 7 - 10	 0 7 18	 0 28% 72%	 0 8 17	 0 32% 68%
7.	Gender a. Male b. Female	 14 11	 56% 44%	 15 10	 60% 40%
8.	Religion a. Hindu b. Muslim c. Christian	 14 5 6	 56% 20% 24%	 13 6 6	 52% 24% 24%
9.	Residential area a. Urban b. Rural	 16 9	 64% 36%	 15 10	 60% 40%
10.	Educational status of Mother a. Primary b. Secondary c. Higher secondary d. Graduate e. Illetrate	 0 0 10 15 0	 0 0 40% 60% 0	 0 0 11 4 0	 0 0 44% 56% 0

11.	Occupational status of Mother				
	a. Private employee	9	36%	10	40%
	b. Government employee	5	20%	3	12%
	c. Own business	5	20%	5	20%
	d. At home	6	24%	7	28%

Table 1- shows the frequency and percentage distribution of the selected demographic variables of the premature newborns in the experimental and control group.

Regarding the gestational weeks, in experimental group, majority 21 (84%) were between 34 -36 weeks and least 4 (16%) were between 31 – 33 weeks. Among the control group majority 22 (88%) were between 34 – 36 weeks and least 3 (12%) were between 31 – 33 weeks respectively.

Regarding the age of the premature newborn, in experimental group, majority 9 (36%) were between 1 – 7 days, 8 (32%) were between 15 – 21 days, 5 (20%) were between 8 – 14 days and least 3 (12%) were between 22 – 28 days. Among the control group, majority 9 (36%) were between 15 – 21 days, 8(32%) were between 1 – 7 days, and least 4 (16%) were present equally between 8 – 14 days and 22 – 28 days.

Regarding the Birth weight, in the experimental group, majority 20(80%) had 2 – 1.751 kg and least 5 (20%) had 1.750 – 1.501 kg weight. among the control group, majority 20 (80%) had 2 – 1.751 kg and least 5 (20%) had 1.750 – 1.501 kg weight respectively.

Regarding the Birth order, in experimental group, majority 20 (80%) were One and least 5 (20%) were Two. Among the control group, majority 17 (68%) were One and least 8 (32%) were Two respectively.

Regarding the cry of the child at birth, in experimental group, majority 18 (72%) had cried well and least 7 (28%) had a weak cry. Among the control group, majority 18 (72%) had cried well and least 7 (28%) had a weak cry respectively.

Regarding the APGAR score, in experimental group, majority 18 (72%) had a score between 7 – 10 and least 7 (28%) had a score between 4 – 6. Among the control group, majority 17 (68%) had a score between 7 – 10 and least 8 (32%) had a score between 4 – 6 respectively.

Regarding gender, in experimental group, majority 14 (56%) were males and least 11(44%) were females. Among the control group, majority 15 (60%) were males and least 10 (40%) were females respectively.

Regarding religion, in experimental group, majority 14 (56%) belongs to Hindu, 6 (24%) belongs to Christian and least 5 (20%) belongs to Muslim. Among the control group, majority 13 (52%) belongs to Hindu and least 6 (24%) belongs to both Christian and Muslim respectively.

Regarding the residential area, in experimental group, majority 16 (64%) belong to urban and least 9(36%) belong to rural area. Among the control area, majority 15 (60%) belong to urban and least 10 (40%) belong to rural area respectively.

Regarding the educational status of mother, in experimental group, majority 15 (60%) were graduates and least 10 (40%) had higher secondary education. Among the control group, majority 14 (56%) were graduates and least 11 (44%) had higher education respectively.

Regarding the occupational status of mother, in experimental group, majority 9 (36%) were private employee, 6(24%) were in home and least 5 (20%) were government employee and 5 (20%) do own business. Among the control group, majority 10 (40%) were private employee, 7 (28%) were in home, 5 (20%) were doing own business and least 3 (12%) were government employee respectively.

It was inferred that, in experimental group, majority 21 (84%) were between 34 – 36 weeks of gestation, 9(36%) were between 1 – 7 days of age, 20 (80%) had a birth weight of 2 – 1. 751 kg, 20 (80%) were of birth order one, 18 (72%) cried well at birth, 18 (72%) had a APGAR score between 7 – 10, 14 (56%) were males, 14 (56%) belong to Hindu, 16 (64%) belong to urban residential area, 15 (60%) mothers were graduate and 9 (36%) mothers were private employees respectively.

Among the control group, majority 22 (88%) were between 34 – 36 weeks of gestation, 9 (36%) were between 15 – 21 days of age, 20 (80%) had a birth weight of 2 – 1. 751 kg, 17 (68%) were of birth order one, 18 (72%) cried well at birth, 17 (68%) had a APGAR score between 7 – 10, 15 (60%) belong to Hindu, 15 (60%) belong to urban residential area, 14 (56%) mothers were graduate and 10 (40%) mothers were private employees respectively.

SECTION 2: DATA ON COMPARISON OF PHYSIOLOGICAL PARAMETER, FEEDING AND SLEEPING PATTERN AMONG PREMATURE NEWBORN AMONG EXPERIMENTAL AND CONTROL GROUP.

TABLE 2: MEAN, SD OF THE POST TEST LEVEL OF PHYSIOLOGICAL PARAMETERS OF THE EXPERIMENTAL AND CONTROL GROUP.

N= 25

GROUP	EXPERIMENTAL GROUP			CONTROL GROUP		
	POST TEST			POST TEST		
	HR	RR	SPO2	HR	RR	SPO2
MEAN	141	29	95	148	34	92
SD	4.9	2.6	1.07	6.4	2.8	1.05

Table 2 shows the mean, standard deviation of the post test level of physiological parameters of the premature newborns in the experimental and control group.

In the experimental group, the overall post test mean HR was 141, SD was 4.9, mean RR was 29, SD was 2.6, mean SPO2 was 95, SD was 1.07 whereas in the control group, the overall post test mean HR was 148, SD was 6.4, mean RR was 34, SD was 2.8, mean SPO2 was 92, SD was 1.05 respectively.

It was inferred that the post test level physiological parameters was lower (HR, RR) and higher (SPO2) in the experimental group than the control group. Hence the Music therapy was found to be effectiveness in improving the Physiological parameters of the premature newborns respectively.

FIGURE 3: FREQUENCY AND PERCENTAGE DISTRIBUTION OF PRE TEST AND POST TEST LEVEL OF FEEDING PATTERN IN EXPERIMENTAL AND CONTROL GROUP.

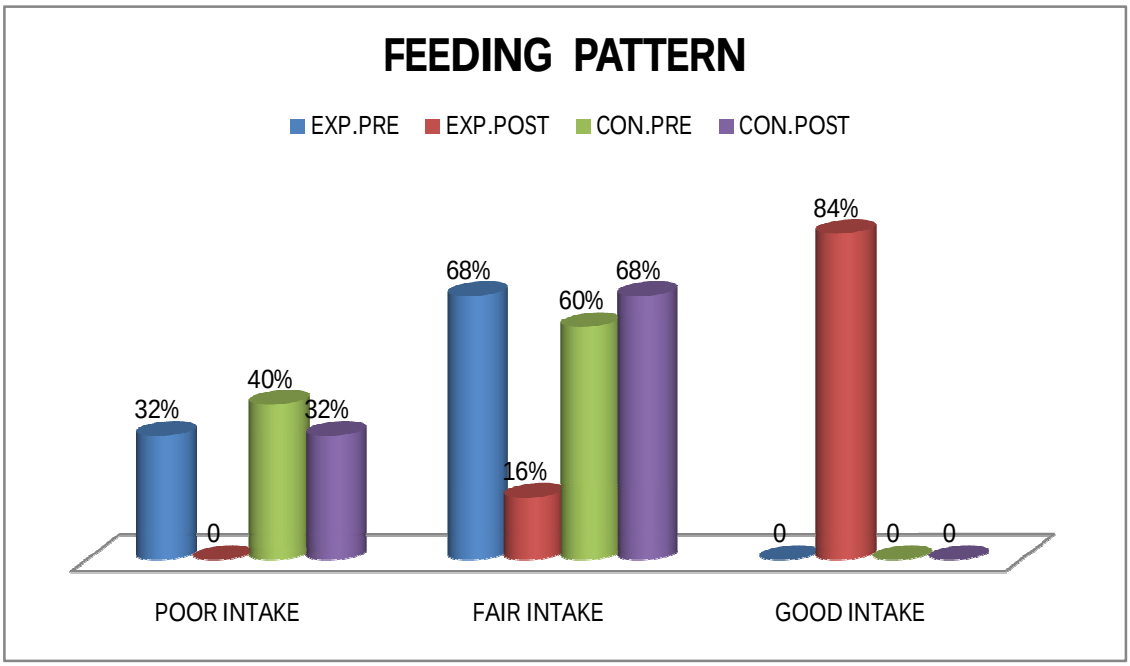

Figure 3 shows the frequency and percentage distribution of the pre test and post test level of feeding pattern among the premature newborns of the experimental and control group

Among the experimental group, in the pre test 8 (32%) had poor intake and 17 (68%) had a fair intake of feeding whereas in the post test, 4 had a fair intake and 21 (84%) had a good intake of feeding.

Among the control group, in the pre test 10 (40%) had poor intake and 15 (60%) had a fair intake of feeding whereas in post test, 8 (32%) had poor intake and 17 (68%) had a fair intake of feeding respectively.

TABLE 3: MEAN, SD, MEAN DIFFERENCE, UNPAIRED t VALUE OF POST TEST LEVEL OF FEEDING PATTERN AMONG THE EXPERIMENTAL AND CONTROL GROUP.

N=50

GROUP	MEAN	SD	MEAN DIFFERENCE	UNPAIRED t VALUE
EXPERIMENTAL POST TEST	15	1.6	7	t = 15.09 Df=49 S
CONTROL POST TEST	8	1.6		

Table 3 shows the mean, standard deviation, mean difference and unpaired t value of the post test level of the feeding pattern of the premature newborns among the experimental and control group.

The mean post test feeding score of the experimental group was 15, SD was 1.6 and the mean post test feeding score of the control group was 8, SD was 1.6. The mean difference was 7. The obtained unpaired t value was 15.09 which is significant at the level of $p<0.05$.

It was inferred that the post test level of feeding was higher in the experimental group than the control group. The obtained unpaired t value, $t=15.09$ was significant at the level of $p<0.05$. Hence the music therapy was found to be effective in improving the feeding pattern of the premature newborns.

FIGURE 4 : FREQUENCY AND PERCENTAGE DISTRIBUTION OF PRE TEST AND POST TEST LEVEL OF SLEEPING PATTERN IN EXPERIMENTAL AND CONTROL GROUP.

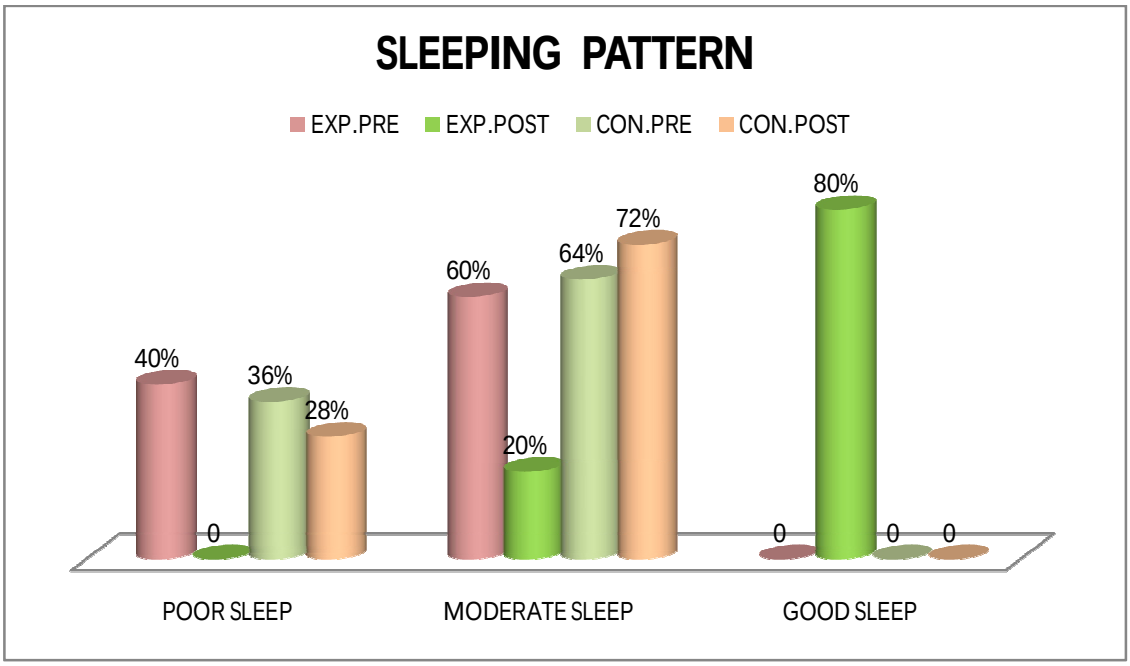

Figure 4 shows the frequency and percentage distribution of the pre test and post test level of sleeping pattern among the premature newborn of the experimental and control group.

Among the experimental group, in the pre test 10 (40%) had poor sleep and 15 (60%) had moderate sleep whereas in the post test 5 (20%) had moderate sleep and 20 (80%) had good sleep respectively.

Among the control group, in the pre test 9 (36%) had poor sleep and 16 (64%) had moderate sleep whereas in the post test, 7 (28%) had poor sleep and 18 (72%) had moderate sleep respectively.

TABLE 4: MEAN, SD, MEAN DIFFERENCE AND UNPAIRED t VALUE OF THE POST TEST LEVEL OF SLEEPING PATTERN AMONG THE EXPERIMENTAL AND CONTROL GROUP.

N=50

GROUP	MEAN	SD	MEAN DIFFERENCE	UNPAIRED t VALUE
EXPERIMENTAL POST TEST	16	1.9	7	t = 12.72 Df = 49 S
CONTROL POST TEST	9	2.1		

Table 4 shows the mean, standard deviation, mean difference and unpaired t value of the post test level of sleeping pattern among the premature newborns of the experimental and control group.

The mean post test sleeping score of the experimental group was 16, SD was 1.9 and the mean post test sleeping score of the control group was 9, SD was 2.1. The mean difference was 7. The obtained unpaired t value was 12.72 which was significant at the level of $p<0.05$.

It was inferred that the post test level of sleeping was higher in the experimental group than the control group. The obtained unpaired t value, $t = 12.72$ was significant at the level of $p<0.05$. Hence the music therapy was found to be effective in improving the sleeping pattern of the premature newborns.

FIGURE 5: OVERALL FREQUENCY AND PERCENTAGE DISTRIBUTION OF PRE TEST AND POST TEST LEVEL OF PHYSIOLOGICAL PARAMETERS, FEEDING AND SLEEPING PATTERN IN THE EXPERIMENTAL AND CONTROL GROUP

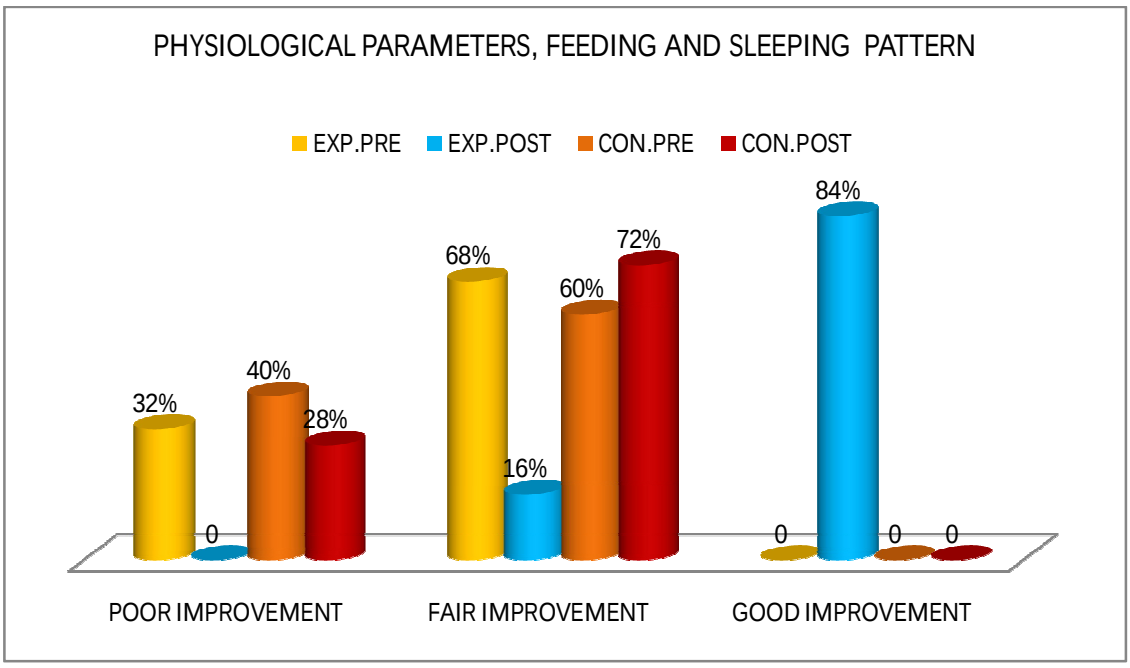

Figure 5 shows the overall frequency and percentage distribution of pre test and post test level of physiological parameters, feeding and sleeping pattern of the premature newborns of the experimental and control group.

Among the experimental group, in the pre test 8 (32%) were in poor improvement and 17 (68%) were in fair improvement to music whereas in the post test 4 (16%) were in fair improvement and 21 (84%) were in good improvement to music respectively.

Among the control group, in the pre test 10 (40%) were in poor improvement and 15 (60%) were in fair improvement whereas in post test 7 (28%) were in poor improvement and 18 (72%) were in fair improvement to music respectively.

SECTION 3 : DATA ON THE EFFECTIVENESS OF MUSIC THERAPY ON THE PHYSIOLOGICAL PARAMETERS, FEEDING AND SLEEPING PATTERN AMONG THE PREMATURE NEWBORNS.

TABLE 5: MEAN, SD OF THE PHYSIOLOGICAL PARAMETERS OF THE EXPERIMENTAL GROUP.

N= 25

EXPERIMENTAL GROUP	PRE TEST			POST TEST		
	HR	RR	SPO2	HR	RR	SPO2
MEAN	152	34	92	141	29	95
SD	6.3	3.4	1.07	4.9	2.6	1.07

Table 5 shows the mean and standard deviation of the physiological parameters of the premature newborns in the experimental group

In the experimental group, in pretest, the mean HR was 152, SD was 6.3; the mean RR was 34, SD was 3.4 ; the mean SPO2 was 92, SD was 1.07. In the post test, the mean HR was 141, SD was 1.07 ; the mean RR was 29, SD was 4.9 ; the mean SPO2 was 95, SD was 1.07.

It was inferred that post test mean score & SD are significantly reduced. Hence, music therapy is effective in maintaining physiological parameters of premature newborns.

TABLE 6: MEAN, SD, MEAN DIFFERENCE AND t VALUE OF PRE TEST AND POST TEST LEVEL OF FEEDING PATTERN OF THE EXPERIMENTAL GROUP.

N= 25

EXPERIMENTAL GROUP	MEAN	SD	RANGE	MEAN DIFFERENCE	PAIRED t VALUE
PRE TEST	7	1.3	4	8	20
POST TEST	15	1.6	5		

Table 6 shows the mean, standard deviation, mean difference and t value of the pre test and post test level of feeding pattern of the premature newborns in the experimental group.

In the experimental group, the overall pre test mean feeding score was 7, SD was 1.3, range was 4 and the overall post test mean feeding score was 15, SD was 1.6, range was 5. The mean difference was 8.

The obtained paired t value was 20 which was significant at the level of $p<0.05$. Hence it was inferred that there is a significant difference in the pre and post test level of feeding pattern among the premature newborn in the experimental group. Hence the music therapy was found to be effective in improving the feeding pattern of the premature newborns.

TABLE 7: MEAN, SD, MEAN DIFFERENCE AND t VALUE OF PRE AND POST TEST LEVEL OF SLEEPING PATTERN OF THE EXPERIMENTAL GROUP.

N= 25

EXPERIMENTAL GROUP	MEAN	SD	RANGE	MD	PAIRED t VALUE
PRE TEST	9	2.2	6	7	12.28
POST TEST	16	1.9	7		

Table 7 shows the mean, standard deviation, mean difference and paired t value of pre and post test level of sleeping pattern of the premature newborns in the experimental group.

In the experimental group, the overall pre test mean sleeping score was 9, SD was 2.2, range was 6 and the overall post test mean sleeping score was 16, SD was 1.9, range was 7. The mean difference was 7.

The obtained paired t value was 12.28 which was significant at the level of $p<0.05$. Hence it was inferred that there is a significant difference in the pre and post test level of sleeping pattern among the premature newborns of the experimental group respectively. Hence the music therapy was found to be effective in improving the sleeping pattern of the premature newborns.

SECTION 4: DATA ON THE ASSOCIATION OF POST TEST LEVEL OF PHYSIOLOGICAL PARAMETERS, FEEDING AND SLEEPING PATTERN OF THE EXPERIMENTAL GROUP AND THEIR SELECTED DEMOGRAPHIC VARIABLES.

TABLE 8: ASSOCIATION BETWEEN THE POST TEST LEVEL OF FEEDING PATTERN OF THE EXPERIMENTAL GROUP AND THEIR SELECTED DEMOGRAPHIC VARIABLES.

S. NO	DEMOGRAPHIC VARIABLES	EXPERIMENTAL GROUP		CHI SQUARE X^2	SIGNIFICANCE
		FREQ	%		
1.	Gestational weeks				
	a. Below 30 weeks	0	0		Df = 4
	b. 31 – 33 weeks	4	16%	0.436	
	c. 34 – 36 weeks	21	84%		NS
2.	Age of premature newborn				
	a. 1 – 7 days	9	36%		Df= 6
	b. 8 – 14 days	5	20%	5.153	
	c. 15 – 21 days	8	32%		NS
	d. 22 – 28 days	3	12%		
3.	Birth weight				
	a. 2 – 1.751 kg	20	80%		Df= 6
	b. 1.750 – 1.501 kg	5	20%	1.67	
	c. 1.500 – 1.251 kg	0	0		NS
	d. > 1.250 kg	0	0		
4.	Birth order				
	a. One	20	80%	0.07	Df= 4
	b. Two	5	20%		
	c. Three	0	0		NS

5.	Cry of the child at birth a. Did not cry b. Weak cry c. Cried well	 0 7 18	 0 28% 72%	 0.18	 Df= 4 NS
6.	APGAR score a. 0 – 3 b. 4 – 6 c. 7 – 10	 0 7 18	 0 28% 72%	 0.18	 Df= 4 NS
7.	Gender a. Male b. Female	 14 11	 56% 44%	 0.69	 Df= 2 NS
8.	Religion a. Hindu b. Muslim c. Christian	 14 5 6	 56% 20% 24%	 1.50	 Df= 4 NS
9.	Residential area a. Urban b. Rural	 16 9	 64% 36%	 2.67	 Df= 2 NS
10.	Educational status of mother a. Primary b. Secondary c. Higher secondary d. Graduate e. Illterate	 0 0 10 15 0	 0 0 40% 60% 0	 0.19	 Df= 8 NS

11.	Occupational status of mother a. private employee b. government employee c. own business d. At home	 9 5 5 6	 36% 20% 20% 24%	2.51	Df= 6 NS

Table 8 shows the association between the post test level of feeding pattern of the premature newborns of the experimental group and their selected demographic variables.

Hence it was inferred that there was no significant association between the post test level of feeding with their selected demographic variables such as gestational weeks, age of premature newborns, birth weight, birth order, cry of the child at birth, APGAR score, gender, religion, residential area, educational status of mother and occupational status of the mother of the premature in the experimental group.

TABLE 9 : ASSOCIATION BETWEEN THE POST TEST LEVEL OF SLEEPING PATTERN OF THE EXPERIMENTAL GROUP AND THEIR SELECTED DEMOGRAPHIC VARIABLES.

S. NO	DEMOGRAPHIC VARIABLES	EXPERIMENTAL GROUP		CHI SQUARE X^2	SIGNIFICANCE
		FREQ	%		
1.	Gestational weeks				
	a. Below 30 weeks	0	0		Df = 4
	b. 31 – 33 weeks	4	16%	0.073	
	c. 34 – 36 weeks	21	84%		NS
2.	Age of premature newborn				
	a. 1 – 7 days	9	36%		Df= 6
	b. 8 – 14 days	5	20%	7.536	
	c. 15 – 21 days	8	32%		NS
	d. 22 – 28 days	3	12%		
3.	Birth weight				
	a. 2 – 1.751 kg	20	80%		Df= 6
	b. 1.750 – 1.501 kg	5	20%	1.562	
	c. 1.500 – 1.251 kg	0	0		NS
	d. > 1.250 kg	0	0		
4.	Birth order				
	a. One	20	80%		Df= 4
	b. Two	5	20%	0	
	c. Three	0	0		NS

5.	Cry of the child at birth a. Did not cry b. Weak cry c. Cried well	 0 7 18	 0 28% 72%	 0.446	 Df= 4 NS
6.	APGAR score a. 0 – 3 b. 4 – 6 c. 7 – 10	 0 7 18	 0 28% 72%	 0.446	 Df= 4 NS
7.	Gender a. Male b. Female	 14 11	 56% 44%	 1.459	 Df= 2 NS
8.	Religion a. Hindu b. Muslim c. Christian	 14 5 6	 56% 20% 24%	 2.142	 Df= 4 NS
9.	Residential area a. Urban b. Rural	 16 9	 64% 36%	 3.515	 Df= 2 NS
10.	Educational status of mother a. Primary b. Secondary c. Higher secondary d. Graduate e. Illterate	 0 0 10 15 0	 0 0 40% 60% 0	 0	 Df= 8 NS

11.	Occupational status of mother a. private employee b. government employee c. own business d. At home	 9 5 5 6	 36% 20% 20% 24%	 2.609	 DF= 6 NS

Table 9 shows the association between the post test level of sleeping pattern of the premature newborns of the experimental group and their selected demographic variables.

Hence it was inferred that there was no significant association between the post test level of sleeping with their selected demographic variables such as gestational weeks, age of premature newborns, birth weight, birth order, cry of the child at birth, APGAR score, gender, religion, residential area, educational status of mother and occupational status of the mother of the premature in the experimental group.

CHAPTER – 5

SUMMARY, FINDINGS, DISCUSSION, IMPLICATIONS, LIMITATIONS, CONCLUSION AND RECOMMENDATIONS.

MUSIC GIVES A SOUL TO UNIVERSE, WINGS TO THE MIND, FLIGHT TO THE IMAGINATION AND LIFE TO EVERYTHING.

The value of any research project lies in reporting its findings. This chapter gives a brief account of the present study including conclusions, drawn from the findings, recommendations, limitations of the study suggestions for further studies and nursing implications.

SUMMARY:

The ultimate aim of the study is to assess the effectiveness of music therapy on the physiological parameters, feeding and sleeping pattern among the premature newborns.

The objectives of the present study were:

- To assess the pre and post test level of physiological parameters, feeding and sleeping pattern among the experimental and control group.

- To compare the pre and post test level of physiological parameters, feeding and sleeping pattern among the experimental and control group.

- To assess the effectiveness of music therapy on the pre and post test level of physiological parameters, feeding and sleeping pattern among the experimental group.

- To find the association between the post test level of physiological parameters, feeding and sleeping pattern and their selected demographic variables among the experimental group.

The study attempted to examine the following hypothesis.

H_1: There is a significant difference in the post level of physiological parameter, feeding and sleeping pattern between the experimental and control group.

H_2: There is a significant association in the post level of physiological parameters, feeding and sleeping pattern of the premature newborns of the experimental group and their selected demographic variables.

The Review of literature was done for the present study and presented in the following headings,

iv. Studies related to premature newborns.
v. Studies related to Music therapy in premature newborns.
vi. Studies related to Music therapy and physiological parameters, feeding and sleeping pattern of premature newborns.

The conceptual framework for the present study is based upon Ernestine Wiedenbach's Art of clinical nursing theory. The research approach adopted for the study was evaluative in nature.

It was a quasi experimental pre test and post test with non randomized control group design. Independent variable was music therapy and dependent variable was the physiological parameters, feeding and sleeping pattern of the premature newborns.

The content validity was established by 4 experts. The reliability of the tool was established by inter–rater and test-retest method. the reliability for PIBBS scale is 0.64 and for modified BISQ was 0.95. The pilot study was conducted at Care – 24 hospital at Erode, among 10 premature newborns who fulfilled the sample selection criteria. The study was found to be feasible.

Prior permission from the authorities was sought and obtained; informed written consent was taken from the mothers of the premature newborns after explaining the purpose of the study. Based on the sample selection criteria, sample were selected by purposive sampling technique. A total of 50 premature babies

were selected for the study, in which 25 babies in experimental group and 25 in control group. The physiological parameters, feeding and sleeping pattern was assessed by a self structured questionnaire, modified BISQ and PIBBS scale before and after the Music Therapy in experimental group. Pre test and post test observation score was recorded without any intervention in control group. Gathered data were analyzed based on the objectives using descriptive and inferential statistics by manually and validated by the Bio- statistician. The level of $p<0.05$ was considered to be significant.

FINDINGS

The major findings of the study were classified under following headings,

Findings - 1: Data on selected Demographic variables of the Premature Newborns in the experimental and control group.

In experimental group, majority 21 (84%) were between 34 – 36 weeks of gestation, 9(36%) were between 1 – 7 days of age, 20 (80%) had a birth weight of 2 – 1. 751 kg, 20 (80%) were of birth order one, 18 (72%) cried well at birth, 18 (72%) had a APGAR score between 7 – 10, 14 (56%) were males, 14 (56%) belong to Hindu, 16 (64%) belong to urban residential area, 15 (60%) mothers were graduate and 9 (36%) mothers were private employees.

Among the control group, majority 22 (88%) were between 34 – 36 weeks of gestation, 9 (36%) were between 15 – 21 days of age, 20 (80%) had a birth weight of 2 – 1. 751 kg, 17 (68%) were of birth order one, 18 (72%) cried well at birth,

17 (68%) had a APGAR score between 7 – 10, 15 (60%) belong to hindu, 15 (60%) belong to urban residential area, 14 (56%) mothers were graduate and 10 (40%) mothers were private employees.

Findings – 2: : Data on comparison of Physiological parameter, Feeding and Sleeping pattern among Premature Newborn among experimental and control group.

In the experimental group, the overall post test mean HR was 141, SD was 4.9, mean RR was 29, SD was 2.6, mean SPO2 was 95, SD was 1.07 whereas in the control group, the overall post test mean HR was 148, SD was 6.4, mean RR was 34, SD was 2.8, mean SPO2 was 92, SD was 1.05 respectively. It was inferred that the post test level physiological parameters was lower (HR, RR) and higher (SPO2) in the experimental group than the control group. Hence the Music therapy was found to be effectiveness in improving the Physiological parameters of the premature newborns respectively.

The mean post test feeding score of the experimental group was 15, SD was 1.6 and the mean post test feeding score of the control group was 8, SD was 1.6. The mean difference was 7. The obtained unpaired t value was 15.09 which is significant at the level of $p<0.05$. It was inferred that the post test level of feeding was higher in the experimental group than the control group. The obtained unpaired t value, $t=15.09$ was significant at the level of $p<0.05$. Hence the music therapy was found to be effective in improving the feeding pattern of the premature newborns.

The mean post test sleeping score of the experimental group was 16, SD was 1.9 and the mean post test sleeping score of the control group was 9, SD was 2.1. The mean difference was 7. The obtained unpaired t value was 12.72 which was significant at the level of $p<0.05$. It was inferred that the post test level of sleeping was higher in the experimental group than the control group. The obtained unpaired t value, $t = 12.72$ was significant at the level of $p<0.05$. Hence the music therapy was found to be effective in improving the sleeping pattern of the premature newborn.

Findings - 3: Data on the Effectiveness of Music therapy on the Physiological parameters, Feeding and Sleeping pattern among the Premature Newborns.

In the experimental group, in pretest, the mean HR was 152, SD was 6.3; the mean RR was 34, SD was 3.4 ; the mean SPO2 was 92, SD was 1.07 respectively. In the post test, the mean HR was 141, SD was 1.07 ; the mean RR was 29, SD was 4.9 ; the mean SPO2 was 95, SD was 1.07 respectively. It was inferred that post test mean scores & SD were significantly reduced. Hence music therapy is effective in maintaining physiological parameters of premature newborns.

In the experimental group, the overall pre test mean feeding score was 7, SD was 1.3, range was 4 and the overall post test mean feeding score was 15, SD was 1.6, range was 5. The mean difference was 8. The obtained paired t value was 20 which was significant at the level of $p<0.05$. It was inferred that there is a significant difference in the pre and post test level of feeding pattern among the premature newborn in the experimental group. . Hence the music therapy was found to be effective in improving the feeding pattern of the premature newborns.

In the experimental group, the overall pre test mean sleeping score was 9, SD was 2.2, range was 6 and the overall post test mean sleeping score was 16, SD was 1.9, range was 7. The mean difference was 7. The obtained paired t value was 12.28 which was significant at the level of $p<0.05$. It was inferred that there is a significant difference in the pre and post test level of sleeping pattern among the premature newborns of the experimental group. Hence the music therapy was found to be effective in improving the sleeping pattern of the premature newborn.

Findings - 4: Data on the association of Post test level of Physiological parameters, Feeding and Sleeping pattern and their selected demographic variables among experimental group.

There was no significant association between the post test level of feeding pattern with their selected demographic variables such as gestational weeks, age of premature newborns, birth weight, birth order, condition of child at birth, APGAR score, gender, religion, residential area, educational status of mother and occupational status of the mother of the premature in the experimental group.

There was no significant association between the post test level of sleeping pattern with their selected demographic variables such as gestational weeks, age of premature newborns, birth weight, birth order, condition of child at birth, APGAR score, gender, religion, residential area, educational status of mother and occupational status of the mother of the premature in the experimental group.

DISCUSSION:

The result of the study were discussed according to the objectives of the study.

Objectives – 1 : To assess the pre and post test level of physiological parameters, feeding and sleeping pattern among the experimental and control group.

In the experimental group, the overall post test mean HR was 141, SD was 4.9, mean RR was 29, SD was 2.6, mean SPO2 was 95, SD was 1.07 whereas in the control group, the overall post test mean HR was 148, SD was 6.4, mean RR was 34, SD was 2.8, mean SPO2 was 92, SD was 1.05.

The mean post test feeding score of the experimental group was 15, SD was 1.6 and the mean post test feeding score of the control group was 8, SD was 1.6. The mean difference was 7.

The mean post test sleeping score of the experimental group was 16, SD was 1.9 and the mean post test sleeping score of the control group was 9, SD was 2.1. The mean difference was 7.

The above findings were consistent with the study done by **Paul and Gupta (1999).** They conducted a study to determine the cardio – respiratory effects of classical music therapy among preterm newborns. The study concluded that

listening to classical music therapy improved the oxygen saturation by 1 – 1.4% and lowers heart rate by 5 – 5.6% among the preterm newborns.

Lubetzky and Dollbery (2009) in their study reported that exposing the preterm infants to the Mozart music significantly lowers the REE and improves the weight gain in the preterm infants.

Objectives – 2 : To compare the pre and post test level of physiological parameters, feeding and sleeping pattern among the experimental and control group.

The post test level physiological parameters was lower (HR, RR) and higher (SPO2) in the experimental group than the control group. It was inferred that post test mean scores & SD were significantly reduced. Hence music therapy is effective in maintaining physiological parameters of premature newborns.

In the experimental group, in the pre test 8 (32%) had poor intake and 17 (68%) had a fair intake of feeding whereas in the post test, 4 had a fair intake and 21 (84%) had a good intake of feeding. In the control group, in the pre test 10 (40%) had poor intake and 15 (60%) had a fair intake of feeding whereas in post test, 8 (32%) had poor intake and 17 (68%) had a fair intake of feeding . Hence the music therapy was found to be effective in improving the feeding pattern of the premature newborn.

In the experimental group, in the pre test 10 (40%) had poor sleep and 15 (60%) had moderate sleep whereas in the post test 5 (20%) had moderate sleep and 20 (80%) had good sleep. In the control group, in the pre test 9 (36%) had poor sleep and 16 (64%) had moderate sleep whereas in the post test, 7 (28%) had poor sleep and 18 (72%) had moderate sleep. Hence the music therapy was found to be effective in improving the sleeping pattern of the premature newborn

The above findings were consistent with the study done by **Deepthimol (2011)** has conducted a study to assess the effectiveness of classical music therapy on physiological and behavioral parameters among the preterm newborns. It was reported that, there is an increase in the oxygen concentration (post test – 96 +/- 0.4), decreased heart rate (post test – 132 +/- 2.4), and decreased crying spells among the preterm newborns.

Objectives – 3 : To assess the effectiveness of music therapy on the pre and post test level of physiological parameters, feeding and sleeping pattern among the experimental group.

In the experimental group, in pretest, the mean HR was 152, SD was 6.3; the mean RR was 34, SD was 3.4 ; the mean SPO2 was 92, SD was 1.07. In the post test, the mean HR was 141, SD was 1.07 ; the mean RR was 29, SD was 4.9 ; the mean SPO2 was 95, SD was 1.07. It was inferred that post test mean scores & SD were significantly reduced. Hence music therapy is effective in maintaining physiological parameters of premature newborns.

In the experimental group, the overall pre test mean feeding score was 7, SD was 1.3, range was 4 and the overall post test mean feeding score was 15, SD was 1.6, range was 5. The mean difference was 8. The obtained paired t value was 20 which was significant at the level of $p<0.05$. It was inferred that there is a significant difference in the pre and post test level of feeding pattern among the premature newborn in the experimental group. Hence the music therapy was found to be effective in improving the feeding pattern of the premature newborn.

In the experimental group, the overall pre test mean sleeping score was 9, SD was 2.2, range was 6 and the overall post test mean sleeping score was 16, SD was 1.9, range was 7. The mean difference was 7. The obtained paired t value was 12.28 which was significant at the level of $p<0.05$. It was inferred that there is a significant difference in the pre and post test level of sleeping pattern among the premature newborns of the experimental group. Hence the music therapy was found to be effective in improving the sleeping pattern of the premature newborn.

The above findings were consistent with the study done by **Loewy (2013),** conducted a study to determine the effects of music therapy on vital signs, feeding and sleeping pattern among 272 premature newborns. The study reported that there was lower heart rate ($p< 0.001$), sucking behavior ($p=0.03$) and the caloric intake ($p=0.01$) showed differences , and also there is differences in sleeping pattern ($p<0.001$) after the music therapy among the premature newborns. It was concluded that the use of music therapy can influence the cardiac, respiratory function, it also improves the sucking pattern and increase prolong periods of quiet-alert states of the premature newborns.

Objectives – 4: To find the association between the post test level of physiological parameters, feeding and sleeping pattern and their selected demographic variables among the experimental group.

It was inferred that there was no significant association between the post test level of feeding with their selected demographic variables such as gestational weeks, age of premature newborns, birth weight, birth order, cry of the child at birth, APGAR score, gender, religion, residential area, educational status of mother and occupational status of the mother of the premature in the experimental group at $p<0.05$ level.

The above findings were consistent with the study done by **Farhat (2010)**, has conducted a study to assess the effect of lullaby music on the physiologic response and weight gain among 44 premature newborns in Imamreza hospital, Iran. The study concluded that there is a significant difference in the physiologic responses and the weight gain of the babies, no significant association with the selected demographic variables of the study.

It was inferred that there was no significant association between the post test level of sleeping with their selected demographic variables such as gestational weeks, age of premature newborns, birth weight, birth order, cry of the child at birth, APGAR score, gender, religion, residential area, educational status of mother and occupational status of the mother of the premature in the experimental group at $p<0.05$ level.

The above findings were consistent with the study done by **Arnon (2006)** has conducted a study to assess the effectiveness of live music therapy on the physiological parameters and behavioral pattern (sleep) among the preterm newborns. The study concluded that live music therapy had a significant association in reduced heart rate and a deeper sleep in preterm infants and no significant association with the selected demographic variables of the study.

IMPLICATION

The findings of the study have the following implications in nursing.

NURSING EDUCATION

- Nursing curriculum can be modified with increased emphasis of alternative therapies.
- Students can be encourage to practice these therapies during their clinical postings under proper guidance.

NURSING PRACTICE

- Music therapy plays a very effective non pharmacological and non invasive intervention in maintaining the physiological parameters and helps in improving the feeding and sleeping pattern of the preterm infants.

- Music therapy was effective in achieving stress relaxation for babies in NICU.

- Music therapy aids in increasing the tolerance for stimulation in preterm babies and also helps to decrease the stress of the parents with preterm infants.

NURSING SERVICE

- Nurses working in the NICU should have enough knowledge about the care and needs of the premature newborns.

- Nurses in the NICU can be given information about the use of the non pharmacological therapies and can be encouraged to implicate these therapies in action.

NURSING RESEARCH

- The study reveals the sound knowledge of the nurses in using various adjuvant therapies.

- The study provides awareness for further studies among the student in this area.

LIMITATIONS

- Period of music therapy was only 3 days
- Non random method was used to select the premature babies.

RECOMMENDATIONS

1. A similar study can be conducted in a large group of preterm babies
2. A longer period of intervention can be studied for more reliability and effectiveness.
3. Similar study can be done with preterm infants with respiratory distress.
4. A multi-group study can be done by selecting different types of music such as live music, recorded music, harp music, Mozart effect and Brahm's lullaby to evaluate the effectiveness of the type of music on the preterm infants.
5. A study can be done using music therapy with combination to other therapy such as massage therapy.
6. The study can be replicated on larger sample in different setting so that the findings can be generalized to larger population.

CONCLUSION

The findings of the study showed that the post test level of physiological parameters, feeding and sleeping pattern of the premature newborns were improved. There was a significant ($p<0.05$) improvement on the physiological parameters, feeding and sleeping pattern among the premature newborns after the music therapy. None of the selected demographic variables revealed that the music therapy had significant association ($P> 0.05$). Thus the study revealed that music therapy was effective to improve the physiological parameters, feeding and sleeping pattern among the Premature Newborns.

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APPENDIX - 1

LETTER SEEKING PERMISSION TO CONDUCT MAIN STUDY

To,

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Respected Sir/Madam,

Greetings from Shivparvathi Mandradiar Institute of Health Sciences, Palayakottai, Thirupur.

Subject: requisition to avail the permission to conduct Project – Regarding.

This is to certify that Ms. F.Abimathy is a bonafied student of Shivparvathi Mandradiar Institute of Health Sciences, Palayakottai, Thirupur pursuing II year M.Sc Nursing under The The Tamilnadu Dr. M.G.R. Medical University Chennai. As a partial fulfillment of the university requirement for the award of Master of Science in Nursing Degree, she needs to conduct a research. And she is interested to conduct the study in your esteemed Hospital. So kindly do the needful and grant her permission to conduct the research study.

Research topic : : "A qausi experimental study to assess the effectiveness of music therapy on the physiological parameters, feeding and sleeping pattern among the premature newborns in selected hospital at Erode."

The details of the research will be briefed in person by her.

Thanking you.

Yours sincerely,

TRAINING CERTIFICATE

This is to certify that **Miss.F. Abimathy**M.Sc Nursing II nd Year, SPM College, Palayakottai has successfully completed Her Research work in NICU at Care 24 Medical Centre & Hospital (a unit of S.K.Medical Foundation (P) Ltd.), Erode in the month June 2016.

In her Research period , we found her sincere, hardworking , technically sound and result oriented. She worked well as part of a team during her tenure. We take this opportunity to thankful and wish all the best for her future.

Dr.S.Karuppannan MS.,Mch.,FICS

Chairman,

Care 24 Medical Centre & Hospital.

Care 24 MEDICAL CENTRE & HOSPITAL
(Established by Dr.Sulochana Karuppannan & Family)
Perundurai Road, Near Parimalam Mahal, Behind Skoda Show Room, ERODE - 638 012.
Phone : 0424 - 2 666 666 (5 lines) **Mobile :** 88833 11993, 88833 12033
Email : info@care24hospital.com **Web :** www.care24hospital.com www.facebook.com/care24hospital

APPENDIX - 3

LETTER REQUESTING SUGGESTION FOR ESTABLISHING CONTENT VALIDITY

From,

301417101,

II year M.Sc (N),

Shivparvathi Mandradiar Institute of Health Sciences,

Palayakottai, Tirupur.

To,

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Through

The principal,

Shivparvathi Mandradiar Institute of Health Sciences,

Palayakottai, Tirupur.

Respected Sir/ Madam,

Subject: Letter requesting opinion and suggestions from part experts for establishing content validity of tool – Regarding.

I am a II year M.Sc Nursing student in Shivparvathi Mandradiar Institute of Health Sciences. As a partial fulfillment of Master Degree in nursing, I have selected the topic mentioned below for the research project to be submitted to "The Tamilnadu Dr. M.G.R. Medical University Chennai".

Topic : “A qausi experimental study to assess the effectiveness of music therapy on the physiological parameters, feeding and sleeping pattern among the premature newborns in NICU, in selected hospital at Erode.”

I kindly request you to validate the following enclosure and give your expert opinion and suggestion for necessary modification of the tool.

Thanking you.

Place : Yours sincerely,

Date : (F.Abimathy).

301417101

Enclosure: 1. Proposal, 2. self structured questionnaire 3. Tool.

APPENDIX - 4

CONTENT VALIDITY CERTIFICATE

I hereby certify that I have validated the tool of 301417101 M.Sc Nursing student who is undertaking : "A qausi experimental study to assess the effectiveness of music therapy on the physiological parameters, feeding and sleeping pattern among the premature newborns in selected hospital at Erode."

Signature of the Expert :

Name :

Designation :

Date

APPENDIX – 5

LIST OF EXPERTS

1. Dr. Arvind kumar M.B.B.S. M.D.,
   Consultant Peadiatrician and Neonatologist,
   Care – 24 Hospital,
   Erode.

2. Dr. Vasanth kumar M.D.,
   Consultant Peadiatrician,
   Care – 24 Hospital,
   Erode.

3. Ms. Dhanya R,
   Assisstant Professor,
   S.P.M.I.H.S.,
   Palayakottai.

4. Ms. Suganthi,
   Staff Nurse,
   Primary Health Center,
   Thirchy.

5. Mrs. Pamila Sam,
   Assistant professor,
   S.D.A College of Nursing,
   Ottapalam,
   Kerala.

APPENDIX - 6

INFORMED CONSENT REQUISITION FORM

Dear participants,

I am 301417101 studying 2nd year M.Sc (N) at Shivparvathi Mandradiar Institute of Health Sciences, Palaiyakottai, Tirupur. As a part of fulfillment of the program, I am conducting "A Quasi experimental study to assess the effectiveness of music therapy on the physiological parameters, feeding and sleeping pattern among the premature newborns in NICU, in selected hospital, Erode". I have prepared a procedure for Music therapy. All the data collected will be kept confidential and be used for my study purpose only. I kindly request to extent your co-operation and willingness to participate in the study by giving your written consent.

Thanking you.

Signature of the Investigator

(301417101)

APPENDIX - 7

INFORMED WRITTEN CONSENT FORM

I understand that I am being asked to participate in a research study conducted by 301417101, M.Sc (N) student of Shivparvathi Mandradiar Institute of Health Sciences.

The research study will evaluate the "Effectiveness of music therapy on the physiological parameters, feeding and sleeping pattern among the premature newborns in NICU, in selected hospital, Erode ". If I agree to participate in the study, I will be interviewed. The interview may be recorded and will take place in a privacy. No identifying information will be included when the interview is transcribed. I understand that there are no risks with this study.

I realize that the knowledge gained from this study may help either me or other people in the future. I realize that my participation in this study is entirely voluntary, and I may withdraw from the study at any time I wish. If I decide to discontinue my participation in this study, I will continue to be treated in the usual and customary fashion.

I understand that all study data will be kept confidential. However, this information may be used in nursing publication or presentations. If I need to, I can contact 301417101 M.Sc. (N) student of Shivparvathi Mandradiar College of Nursing , Palayakottai, Tirupur at any time during the study. (ph.no: 9789041265).

The study has been explained to me. I have read and understood this consent form, my entire question has been answered, and I agree to participate. I understand that I will be given a copy of this signed consent form.

Signature of the Participant: Date :

Signature of the Investigator: Date:

முன்அறிவிப்பு ஒப்பந்தப்படிவம்

சிவபார்வதி மன்றாடியார் செவிலியர் கல்லூரியின் சார்பில் செல்வி.பி.அபிமதி, முதுநிலை இரண்டாம் ஆண்டு மாணவி நடத்தும் இந்த ஆய்வில் என்னை பங்கேற்க கேட்டுக் கொண்டதை நான் ஏற்றுக்கொள்கிறேன்.

ஈரோடு மாவட்டம், கேர் 24 மருத்துவமனையில் உள்ள பச்சிளம் குழந்தை தீவிர சிகிச்சைப் பிரிவில் உள்ள குறைமாத குழந்தைகளுக்கு இசைப்பயிற்சி தருவதன் மூலம் அக்குழந்தையின் உடலியல் அளவுரு, தாய்ப்பால் எடுக்கும் முறை மற்றும் தூக்கநிலை மேம்படுத்துதல் தொடர்பான ஆராய்ச்சிக்கு நான் ஒப்புக்கொள்கிறேன்.

இந்த ஆய்வுக்கு நான் ஒப்புக்கொண்டால் அதனைத் தொடர்ந்து உள்ள நேர்முக உரையாடலில் பங்கேற்க வேண்டும் என்பதை நான் அறிவேன். என்னிடம் நடத்தும் நேர்முக உரையாடல் அனைத்தும் பதிவு செய்யப்பட்டு பாதுகாக்கப்படும் என்பதை நான் அறிவேன்.

இந்த ஆய்வின் மூலமாக எனக்கும் என் குழந்தைக்கும் எந்த பாதிப்பும் இல்லை என்பதை நான் அறிந்து கொண்டேன் எதிர்காலத்தில் இந்த ஆய்வின் முடிவுகள் எனக்கோ அல்லது பிற மக்களுக்கோ பயன்படும் என்பதை நான் அறிவேன்.

நான் எவரின்/யாருடைய கட்டாயத்தின் பெயரிலோ அல்லது வற்புறுத்தலின் பெயரிலோ இந்த ஆய்வில் பங்கு கொள்ளவில்லை என்பதையும், தேவைப்பட்டால் நான் ஆய்விலிருந்து விலகிக் கொள்ளவும் எனக்கு முழு உரிமை உண்டு என்பதையும் அறிவேன்.. அவ்வாறு ஆய்விலிருந்து விலகிக்

கொள்ளும் பட்சத்தில் எப்போதும் பிறரைப் போலவே நடத்தப்படுவேன் என்பதை அறிவேன். என்னை பற்றிய அனைத்து

தகவல்களும் இரசியமாக பாதுகாப்படும் என்பதை அறிவேன். தேவைப்படும் போது ஆய்வின் முடிவுகள் செவிலியர் சார்ந்த பத்திரிக்கைகளிலும், கருத்தரங்குகளிலும் வெளியிட முழு சம்மதம் அளிக்கிறேன் .தேவைப்படும் போது எப்போது வேண்டுமானாலும் ஆய்வில் பங்கு கொள்ள சம்மதம் அளிக்கிறேன்.

இந்த ஆய்வினை பற்றிய சந்தேகங்களைத் தெளிவுபடுத்திக் கொள்ள சிவபார்வதி மன்றாடியார் செவிலியர் கல்லூரி, பழையகோட்டை முதுநிலை இரண்டாம் ஆண்டு பயிலும் மாணவி செல்வி.பி.அபிமதியை எப்போது வேண்டுமானாலும் தொடர்பு கொள்ளலாம் என்பதை அறிவேன். (கைபேசிஎண் : 97890 41265)

இந்த ஆய்வினை பற்றிய முழு விளக்கமும் எனக்கு அளிக்கப்பட்டிருக்கிறது. அதனை நான் முற்றிலுமாக புரிந்துகொண்டு ஆய்வில் பங்கு கொள்ள சம்மதிக்கிறேன்.

பங்குகொள்பவரின்கையொப்பம் தேதி :

ஆராய்ச்சியாளரின்கையொப்பம் தேதி :

• சப்தஸ்வரங்கள் •
Shaptha Swarangal ®
Multi Activity School
601,Perundurai Road,Chairman Thottam,Near Dr.Sathiyamurthy Bus Stopping,Collectrate Post, Erode - 638 011.

To,

The Principal,

S.P.M.College of Nursing,

Palaiyakottai.

Thirupur Dist,

Sub: Certification to Research Work.....

This is to Certify that Ms.ABIMATHY M,Sc (N) has selected Music for her Research Work.

The Selected Music is Perfect for her Study that is effectiveness on the preterm babies...

Thanking You,

Yours Faithfully,

4/8/16

•சப்தஸ்வரங்கள்•
Shaptha Swarangal
Music . Arts . Dance School
601, Perundurai Road, Erode.
Ph: 0424-2265185, 9442265185

APPENDIX - 9

INTERVIEW GUIDE ON EFFECTIVENESS OF MUSIC THERAPY AMONG PREMATURE NEWBORNS IN NICU OF SELECTED HOSPITAL

INSTRUCTION CODE NO:

This section deals with the demographic variables of the respondents. The interviewer will pose questions listed below and place (✓) tick mark against the correct answer.

SECTION – 1

DEMOGRAPHIC VARIABLES

1. Gestational weeks of newborn

   a. Below 30 weeks
   b. 31 – 33 weeks
   c. 34 – 36 weeks

2. Age of premature newborn after birth

   a. 1 – 7 days
   b. 8 – 14 days
   c. 15 – 21 days
   d. 22 – 28 days

3. Birth weight

    a. 2 – 1.751 kg
    b. 1.750 – 1.501 kg
    c. 1.500 – 1.251 kg
    d. > 1.250 kg

4. Birth order of newborn

    a. One
    b. Two
    c. Three

5. Cry of the child at birth

    a. Did not cry
    b. Weak cry
    c. Cried well

6. APGAR Score after 5 minutes

    a. 0 – 3
    b. 4 – 6
    c. 7 – 10

7. Gender

    a. Male
    b. Female

8. Religion

    a. Hindu
    b. Muslim
    c. Christian

9. Residential area

    a. Urban
    b. Rural

10. Educational status of the mother

    a. Primary
    b. Secondary
    c. Higher secondary
    d. Graduate
    e. Illiterate

11. Occupational status of the mother

    a. Private employee
    b. Government employee
    c. Own business
    d. At home

SECTION – 2

Part – 1

Physiological parameters

1. Heart rate

    a. < 140
    b. 141 – 150
    c. > 151

2. Respiratory rate

    a. < 30
    b. 31 – 40
    c. > 41

3. SPO2

    a. 90 – 92
    b. 93 – 95
    c. 96 – 98

Scoring interpretation:

- 3 – Normal
- 2 – Irritable
- 1 – Restless

Part – 2

PIBBS scale

1. Rooting of the baby

    a. Did not root
    b. Showed some rooting
    c. Showed simultaneous rooting

2. Areolar grasp by the baby

    a. None, mouth touched only nipple
    b. Part of nipple
    c. Whole nipple, not areola
    d. Nipple and some areola

3. Latched on by the baby

    a. Did not latched on
    b. Latched on for less than 1 minute
    c. Latched on for 1 – 15 minute
    d. Latched on for more than 15 minutes

4. Sucking by the baby

    a. No sucking / licking
    b. Licking and tasting but not sucking
    c. Single suck (2 – 9)
    d. Repeated short sucking (> 10)
    e. Repeated long sucking

5. Longest suck by the baby

    a. No sucking
    b. 1 – 4 sucks
    c. 5 – 9 sucks
    d. 10 – 14 sucks
    e. 15 – 19 sucks
    f. 20 – 25 sucks
    g. More than 25 sucks

6. Swallowing pattern of the baby

    a. No swallowing
    b. Swallowing was noticed
    c. Repeated occasional swallowing

Scoring interpretation:

- 0 - 6 : Poor intake
- 7 - 13 : Fair intake
- 14 – 20 : Good intake

Part – 3

Modified BISQ

1. Nocturnal sleep duration of the baby

    a. Less than 6 hrs
    b. 6 – 8 hrs
    c. 8 – 10 hrs
    d. More than 10 hrs

2. Day time sleep duration of the baby

    a. Less than 8 hrs
    b. 8 – 10 hrs
    c. 10 - 12 hrs
    d. More than 12 hrs

3. No of night waking of the baby

    a. More than 8 times
    b. 6 – 8 times
    c. 3 – 5 times
    d. Less than 2 times

4. Duration of night wakefulness of the baby

    a. 0 – 5 minutes
    b. 5 – 10 minutes
    c. 10 – 15 minutes
    d. More than 15 minutes

5. Sleep onset time duration after wakefulness by the baby

    a. 0 – 5 minutes
    b. 5 – 10 minutes
    c. 10 – 15 minutes
    d. More than 15 minutes

6. No of morning wakefulness by the baby

    a. More than 8 times
    b. 6 – 8 times
    c. 3 – 5 times
    d. Less than 2 times

7. Total duration of sleep by the baby

    a. Less than 14 hrs
    b. 14 – 16 hrs
    c. 16 – 18 hrs
    d. More than 18 hrs

Scoring interpretation:

- 0 – 7 : Poor sleep
- 8 – 14 : Moderate sleep
- 15 – 21 : Good sleep

Total Score interpretation of the Tool:

Total score - 50

Least score - 0

- 0 – 16 : Poor improvement
- 17 – 33 : Fair improvement
- 34 – 50 : Good improvement

சுயகுறிப்புவிவரம்

1. **குறை பிரசவகுழந்தையின் கருவளர்ச்சி வாரங்கள்**

   அ. 30 வாரங்களுக்குள்

   ஆ. 31-33 வாரங்கள்

   இ. 34-36 வாரங்கள்

2. **குறை பிரசவகுழந்தை பிறந்த பின்னர் உள்ளவயது**

   அ. 1-7 நாட்கள்

   ஆ. 8-14 நாட்கள்

   இ. 15-21 நாட்கள்

   ஈ. 22-28 நாட்கள்

3. **பிறப்பு எடை**

   அ. 2 – 1.751 கிலோ

   ஆ. 1-750 – 1.501 கிலோ

   இ. 1.500 – 1.251 கிலோ

   ஈ. >1.251 கிலோ

4. **பிறப்பு வரிசை**

   அ. ஒன்று

   ஆ. இரண்டு

   இ. மூன்று

5. குழந்தை பிறந்தபோது அதன் அழுகை

அ. அழவில்லை

ஆ. சோர்வான அழுகை

இ. நன்றாக அழுதது

6. APGAR மதிப்பெண்

அ. 0-3

ஆ. 4-6

இ. 7-10

7. பாலினம்

அ. ஆண்

ஆ. பெண்

8. மதம்

அ. இந்து

ஆ. முஸ்லீம்

இ. கிறிஸ்தவர்

9. வசிப்பிடம்

அ. நகர்புறம்

ஆ. கிராமபுறம்

10. தாயின் கல்வித் தகுதி

அ. முதன்மை நிலைக்கல்வி

ஆ. நடுநிலை கல்வி

இ. உயர்நிலை கல்வி

ஈ. பட்டதாரிகள்

உ. படிக்காதவர்

11. தாயின் வேலைவாய்ப்பு

அ. தனியார் வேலை

ஆ. அரசுப்பணி

இ. சொந்தமான தொழில்

ஈ. வீட்டில் உள்ளார்

பிரிவு – ஆ

I- உடலியல்அளவுரு

1. இதயதுடிப்பு

a. < - 140
b. 141-150
c. 151 க்கும் அதிகமாக இருத்தல்

2. சுவாகவிகிதம்

a. < - 30
b. 31-40
c. 40 அதிகமாக இருத்தல்

3. **ஆக்ஸிஜன்பூரிதம்**
    a. 90-92
    b. 93-95
    c. 96-98

மதிப்பெண்விளக்கம்

3 - சாதாரணநிலை

2 - அமைதியற்றநிலை

1 - எரிச்சலூட்டும்நிலை

II - குறை பிரசவகுழந்தையின் தாய்ப்பால் எடுக்கும் முறை குறித்த விவரங்கள்

1. **குழந்தையின் தாய்ப்பால் எடுக்கும் அடிப்படை தன்னியல்பு செய்கை**
    a. இல்லை
    b. முழுமை பெறவில்லை
    c. முழுமையாக உள்ளது

2. **குழந்தை, தாயின் மார்பில் உள்ள கருவட்ட பகுதி பற்றுதல்**

   a. இல்லை, குழந்தையின் வாய் முலைக்காம்பை மற்றும் பற்றியிருத்தல்

   b. முலைகாம்பின் ஒரு பகுதியை மற்றும் குழந்தை பற்றியிருத்தல்

   c. குழந்தை, முலைகாம்பை முழுமையாக பற்றுதல், ஆனால் சிறு கருவட்ட பகுதியை பற்றவில்லை

   d. குழந்தை, முலைகாம்பை முழுமையாக பற்றுதல் மற்று சிறுகருவட்ட பகுதியில் ஒரு பகுதி மட்டும் பற்றியிருத்தல்.

3. **குழந்தை, தாயின் மார்பில் பொருத்துதல் இருத்தலின் காலநேரங்கள்**

   a. குழந்தை, பொருத்தவில்லை

   b. 1 மணிதுளிக்கும் குறைவாக பொருத்துதல்

   c. 1-15 மணிதுளிக்குள் பொருத்து இருத்தல்

   d. 15 மணித்துளிகளுக்கும் மேலாக பொருத்தி இருத்துதல்

4. **குழந்தையின் தாய்ப்பால் உறிஞ்சும் தன்மைகள்**

   a. குழந்தை, உறிஞ்சவில்லை

   b. குழந்தை சப்புதல் ஆனால் உறிஞ்சவில்லை

   c. ஒருமுறை மட்டும் உறிஞ்சுதல்

   d. குறைந்த அளவில் உறிஞ்சுதல் (> 10)

   e. அதிகமாக நெடுநேரம் உறிஞ்சுதல்

5. குழந்தையின் நெடுநேரம் உறிஞ்சும் திறன்

a. உறிஞ்சவில்லை

b. 1-4 முறை உறிஞ்சுதல்

c. 5-9 முறை உறிஞ்சுதல்

d. 10-14 முறை உறிஞ்சுதல்

e. 15-19 முறை உறிஞ்சுதல்

f. 20-285 முறை உறிஞ்சுதல்

g. 25 முறைக்கும் மேலாக உறிஞ்சுதல்

6. குழந்தை தாய்ப்பால் உறிஞ்சி விழுங்குதல்

a. குழந்தை தாய்ப்பால் விழுங்கவில்லை

b. குழந்தை அவ்வப்போது விழுங்குகிறது

c. குழந்தை நன்றாக தாய்ப்பால் விழுங்குகிறது

மொத்தமதிப்பெண் : 20

மதிப்பெண்விளக்கம்

0-6 :குறைவாக தாய்ப்பால் எடுக்கிறது

7-13 :மிதமாக தாய்ப்பால் எடுக்கிறது

14-20 :நன்றாக தாய்ப்பால் எடுக்கிறது

III - குழந்தையின் தூக்கநிலை குறித்த விவரங்கள்

1. **குழந்தையின் இரவு நேர தூக்கம்**

   அ. 6 மணி நேரத்திற்கும் குறைவாக

   ஆ. 6-8 மணி நேரங்கள்

   இ. 8-10 மணி நேரங்கள்

   ஈ. 10 மணி நேரத்திற்கும் அதிகமாக

2. **குழந்தையின்காலைநேரதூக்கம்**

   அ. 8 மணி நேரத்திற்க்கும்குறைவாக

   ஆ. 8-10 மணி நேரங்கள்

   இ. 10-12 மணி நேரங்கள்

   ஈ. 12 மணி நேரத்திற்கும் அதிகமாக

3. **குழந்தை எவ்வளவு முறை இரவில் விழிக்கிறது?**

   அ. 8 முறைக்கும் அதிகமாக

   ஆ. 6-8 முறை

   இ. 3-5 முறை

   ஈ. < 2 முறை

4. **குழந்தை எவ்வளவு நேரம் இரவில் விழித்திருக்கிறது**

அ. 0-5 நிமிடங்கள் வரை

ஆ. 5-10 நிமிடங்கள் வரை

இ. 10-15 நிமிடங்கள் வரை

ஈ. 15 நிமிடங்களுக்கு அதிகமாக

5. **குழந்தை விழித்த பிறகு தூங்கச் செல்வதற்கு எடுத்துக் கொள்ளும் கால அளவு**

அ. 0-5 நிமிடங்கள்

ஆ. 5-10 நிமிடங்கள்

இ. 10-15 நிமிடங்கள்

ஈ. 15 நிமிடங்கள் வரை

6. **குழந்தை எவ்வளவு முறை காலையில் விழிக்கிறது**

அ. 8 முறைக்கும் அதிகமாக

ஆ. 6-8 முறைகள்

இ. 3-5 முறைகள்

ஈ. < 2 முறை

7. குழந்தை தூங்கும் மொத்த நேரங்கள் (இரவு + காலை)

அ. 14 மணி நேரத்திற்கும் குறைவாக

ஆ, 14-16 மணி நேரங்கள்

இ. 16-18 மணி நேரங்கள்

ஈ. 18 மணி நேரத்திற்கும் அதிகமாக

மொத்தமதிப்பெண் : 21

மதிப்பெண்விளக்கம்

1-7 குறைவாகதூக்கம்

8-14 மிதமானதூக்கம்

15-21 நல்லதூக்கம்

பிரிவு ஆ இன் மொத்த மதிப்பெண் : 50

மதிப்பெண்விளக்கம்

0-16 : குறைவான முன்னேற்றம்

17-33 : மிதமான முன்னேற்றம்

34-50 : நல்ல முன்னேற்றம்

APPENDIX - 10

PROCEDURE ON MUSIC THERAPY

PREPARATORY PHASE

- Select the premature newborn
- Set the articles
    - Music Compact Disk
    - Head phone
    - CD drive

PROCEDURE

1. Explain the procedure to the baby's mother
2. Provide comfortable position for the baby
3. Play the music for 15 minutes
4. Provide the music therapy for 3 consecutive days

AFTER THE PROCEDURE

Baby should be comfortable.